Water Quality Management Plan (WQMP)

Project Name:

McDonald's Buena Park (4-5199)

Prepared for:

McDonald's USA

110 N. Carpenter Street

Chicago, IL 60607

(800) 244-6227

Prepared by:

Kimley-Horn and Associates

Engineer Amelia Beltran Registration No. 87468

180 E Ocean Blvd, Suite 1200

Long Beach, CA 90802

(562) 549-2200

1st SUBMITTAL 8/11/24

2nd SUBMITTAL 10/10/25

Project Owner's Certification			
Permit/Application No.	CU-25-1	Grading Permit No.	TBD
Tract/Parcel Map No.	TR 817, Lot 19	Building Permit No.	TBD
CUP, SUP, and/or APN (Specify Lot Numbers if Portions of Tract)			APNs: 260-022-05, 260-022-06

This Water Quality Management Plan (WQMP) has been prepared for McDonald's USA by Kimley-Horn and Associates. The WQMP is intended to comply with the requirements of the local NPDES Stormwater Program requiring the preparation of the plan.

The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this plan and will ensure that this plan is amended as appropriate to reflect up-to-date conditions on the site consistent with the current Orange County Drainage Area Management Plan (DAMP) and the intent of the non-point source NPDES Permit for Waste Discharge Requirements for the County of Orange, Orange County Flood Control District and the incorporated Cities of Orange County within the Santa Ana Region. Once the undersigned transfers its interest in the property, its successors-in-interest shall bear the aforementioned responsibility to implement and amend the WQMP. An appropriate number of approved and signed copies of this document shall be available on the subject site in perpetuity.

Owner: 2018 Skoumbis Family Trust			
Title	Kenneth Skoumbis and Joanne Skoumbis, Trustees of the 2018 Skoumbis Family Trust		
Company	2018 Skoumbis Family Trust		
Address			
Email			
Telephone #			
Signature		Date	

Preparer (Engineer):			
Title	Amelia Beltran, P.E.	PE Registration #	87468
Company	Kimley-Horn and Associates		
Address	180 E Ocean Blvd, Suite 1200, Long Beach, CA 90802		
Email	Amelia.Beltran@Kimley-Horn.com		
Telephone #	(562) 549-2200		

I hereby certify that this Water Quality Management Plan is in compliance with, and meets the requirements set forth in, Order No. R8-2009-0030/NPDES No. CAS618030, of the Santa Ana Regional Water Quality Control Board.

Preparer Signature	Amelia Beltran	Date	10/10/2025
Place Stamp Here	REGISTERED PROFESSIONAL ENGINEER AMELIA M BELTRAN C 87468 CIVIL STATE OF CALIFORNIA		

Contents

Page No.

Attachments

Section I Discretionary Permit(s) and Water Quality Conditions

Provide discretionary permit and water quality information. *Refer to Section 2.1 in the Technical Guidance Document (TGD) available from the Orange County Stormwater Program (ocwatersheds.com).*

Project Infomation			
Permit/Application No.	TBD	Tract/Parcel Map No.	TR 817, Lot 19
Additional Information/ Comments:	TBD		
Water Quality Conditions			
Water Quality Conditions (list verbatim)	The project is subject to the water quality conditions set forth per City of Buena Park (Title 13, Chapter 32, Section 30), which requires all new development and significant redevelopment projects comply with the requirements of the County of Orange Drainage Area Management Plan (DAMP). The project drains to city storm drain system and it joins Coyote Creek at the 91 Freeway.		
Watershed-Based Plan Conditions			
Provide applicable conditions from watershed - based plans including WIHMPs and TMDLS.	The project lies within the San Gabriel-Coyote Creek Watershed (Attachment G). Per the hydromodification susceptibility map, the project area is NOT within an area with potential for erosion, habitat, & physical structure susceptibility. The project area discharges storm water to the public curb and gutter along the easterly end of Hoffman Street which discharges to the public storm drain line at the intersection of Hoffman Street and San Harco Circle. The public storm drain line discharges to the Coyote Creek at the intersection of the Coyote Creek and 91 Freeway. The Coyote Creek ultimately discharges into the San Gabriel River Reach 1, the San Gabriel River Estuary, and the San Pedro Bay Near/Off Shore Zones. From Table 2.4 "Summary of the Status of TMDLs for Waterbodies in Region 8 and 9" of the TGD the following pollutant affect: Coyote Creek: Metals, Pesticides, Total Toxics, pH (other cause), Pathogens, Toxic Inorganics (TMDL required) San Gabriel River Reach 1: Oil and Grease, pH (other cause) (TMDL required) San Gabriel River Estuary: Metals, Nutrients, Pathogens, Pesticides, Toxic Inorganics, Toxic Organics (TMDL required)		

	San Pedro Bay Near/Off Shore Zones: Pesticides, Toxic Organics, Total Toxics (TMDL required) The State Water Resources Control Board trash amendments require full capture of trash.

Section II Project Description

II.1 Project Description

Provide a detailed project description including:

- Project areas;
- Land uses;
- Land cover;
- Design elements;
- A general description not broken down by drainage management areas (DMAs).

Include attributes relevant to determining applicable source controls. *Refer to Section 2.2 in the TGD for information that must be included in the project description.*

Description of Proposed Project		
Development Category (Verbatim from WQMP):	Project falls under priority category 3. Restaurants where the land area of development is 5,000 square feet or more including parking area. This category is defined as facilities that sell prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption. The project will disturb 99% of the property. As a result, Section 7.II-2.0 of Model WQMP applies to only the disturbed property.	
Project Area (ft^2): 45,045	Number of Dwelling Units: N/A	SIC Code: 5812
Narrative Project Description:	McDonald's USA proposes to construct and operate a new McDonald's restaurant at 6201 Lincoln Avenue, Buena Park, CA 90620. In the existing condition, the project site is Imperial Burger, a fast-food drive-thru restaurant. The area is bounded by Lincoln Avenue to the south, Hoffman Street to the west, multi-family residential to the north, and Buena Park Montessori to the east. There is a screen wall that extends along the north and east property line between project site and neighboring properties. The site is a 1.04-acre property where the site has existing screen walls to the north and east. The northern screen wall is within our property line and is being protected, so a small area of 0.01-acre north of the wall is not being disturbed. Ultimately, a total of 1.03-acre is considered for water quality treatment. Potential run-on was identified from the eastern property through existing wall weep hole was noted. Proposed concrete channel will run	

	east to west to convey run-on to drain to the eastern gutter of Hoffman Street as in existing conditions. The proposed building will be rectangle-oriented north to south with entrances on the south, east faces of the building. The drive-thru approach will be on the eastern end of the site and circulation is counterclockwise. The drive-thru exit will be to the southern end of the site. The building will have a roof-drain system that discharges to the surface of the drive-thru and will therefore be included in drainage calculations. To meet the City of Buena Park's Water Quality requirements, the site has been designed to surface flow storm water runoff into two (2) bioretention basins and two (2) drop inlets fitted with BioClean Catch Basin Filter Inserts for full trash capture. The drop inlets will capture the runoff for the 24-hour 85th percentile storm event and convey it to one (1) modular wetland system (MWS). The bioretention basins will infiltrate treated flows and water can pond up to 6" before it enters overflow device and routed to the MWS. Treated flows and overflow from the MWS will be pumped through a proposed parkway drain to the eastern gutter of Hoffman Street. During storm events larger than the 85th percentile storm event, runoff will overflow the proposed MWS via bypass weir and be routed to a sump pump. The pump will discharge the flows to a proposed parkway drain to the eastern gutter of Hoffman Street. Land use at the proposed site will include indoor food preparation, cooking, indoor eating area, a drive-thru, and improvements to the surface parking and landscaping design. A covered trash enclosure is proposed at the northwestern corner of the site. Expected waste will be food waste, grease from cooking, leaks from vehicles, landscape waste, trash, and debris. Ownership and maintenance of the site are all encompassed under McDonald's USA.

Project Area	Pervious		Impervious	
	Area (sq ft)	Percentage	Area (sq ft)	Percentage
Pre-Project Conditions	4,508	10.0	40,537	90.0
Post-Project Conditions	8,485	18.8	36,560	81.2

Drainage Patterns/Connections	In the existing condition, storm water runoff surface flows from the southeastern corner to the northwestern corner of the site towards the existing gutter of Hoffman Street. Runoff then flows north to the intersection of Hoffman Street and San Marco Circle enters the southeastern public catch basin, into the public storm drain system, and is conveyed to the Coyote Creek. Ultimately discharging into the San Gabriel River Reach 1, the San Gabriel River Estuary, and the San Pedro Bay Near/Off Shore Zones.

II.2 Potential Stormwater Pollutants

Determine and list expected stormwater pollutants based on land uses and site activities. *Refer to Section 2.2.2 and Table 2.1 in the TGD for guidance.*

Pollutants of Concern			
Pollutant	Circle One: E=Expected to be of concern N=Not Expected to be of concern		Additional Information and Comments
Suspended-Solid/ Sediment	(E)	N	Expected pollutant due to landscaping on-site.
Nutrients	(E)	N	Expected pollutant due to landscaping on-site.
Heavy Metals	(E)	N	Expected in a commercial development.
Pathogens (Bacteria/Virus)	(E)	N	Expected due to land use involving food.
Pesticides	(E)	N	Expected pollutant due to landscaping on-site.
Oil and Grease	(E)	N	Expected in a commercial development.
Toxic Organic Compounds	(E)	N	Expected in a commercial development.
Trash and Debris	(E)	N	Expected in a commercial development.

II.3 Hydrologic Conditions of Concern

Determine if streams located downstream from the project area are determined to be potentially susceptible to hydromodification impacts. *Refer to Section 2.2.3.1 for NOC or Section 2.2.3.2 for* SOC.

☒ No – Show map

☐ Yes – Describe applicable hydrologic conditions of concern below. *Refer to Section 2.2.3 in the TGD.*

II.4 Post Development Drainage Characteristics

Describe post development drainage characteristics. *Refer to Section 2.2.4 in the TGD.*

In the proposed condition, the existing drainage patterns will be maintained. That is, storm water runoff from the building roof, parking lot area, drive-thru area, and landscape areas drain via surface flow towards and be captured by three (3) on-site drop inlets.

During storm events larger than the 85th percentile storm event, runoff will overflow the proposed MWS via bypass weir and be routed to a sump pump. The pump will discharge the flows to a proposed parkway drain to the eastern gutter of Hoffman Street. Runoff then flows north to the intersection of Hoffman Street and San Marco Circle enters the southeastern public catch basin, into the public storm drain system, and is conveyed to the Coyote Creek. Ultimately discharging into the San Gabriel River Reach 1, the San Gabriel River Estuary, and the San Pedro Bay Near/Off Shore Zones.

II.5 Property Ownership/Management

Describe property ownership/management. *Refer to Section 2.2.5 in the TGD.*

The property owner is Kenneth Skoumbis and Joanne Skoumbis, Trustees of the 2018 Skoumbis Family Trust and McDonald's USA is the tenant of the site and owner of the project. The proposed development and BMPs will be maintained by McDonald's USA through a lease agreement with the property owner. The operation and maintenance costs of the BMPs will be incorporated with the operating budget for the restaurant.

Section III Site Description

III.1 Physical Setting

Fill out table with relevant information. *Refer to Section 2.3.1 in the TGD.*

Planning Area/ Community Name	Mixed Use Overlay-45 Commercial
Location/Address	6201 Lincoln Avenue Buena Park, CA 90620
Land Use	GC – General Commercial
Zoning	CS – Community Shopping
Acreage	1.03
Predominant Soil Type	B

III.2 Site Characteristics

Fill out table with relevant information and include information regarding BMP sizing, suitability, and feasibility, as applicable. Refer to Section 2.3.2 in the TGD.

Precipitation Zone	85th percentile depth is 0.9 inches
Topography	Site is relatively flat (slopes range from 0.5% to 3.5%)
Drainage Patterns/Connections	To meet the City of Buena Park's Water Quality requirements, the site has been designed to surface flow storm water runoff into two (2) bioretention basins and two (2) drop inlets fitted with BioClean Catch Basin Filter Inserts for full trash capture. The drop inlets will capture the runoff for the 24-hour 85th percentile storm event and convey it to one (1) modular wetland system (MWS). The bioretention basins will infiltrate treated flows and water can pond up to 6" before it enters overflow device and routed to the MWS. Treated flows from the MWS will be pumped through a proposed parkway drain to the eastern gutter of Hoffman Street. During storm events larger than the 85th percentile storm event, runoff will

Site Characteristics (continued)	
	overflow the proposed MWS via bypass weir and be routed to a sump pump. The pump will discharge the flows to a proposed parkway drain to the eastern gutter of Hoffman Street. Runoff then flows north to the intersection of Hoffman Street and San Marco Circle enters the southeastern public catch basin, into the public storm drain system, and is conveyed to the Coyote Creek. Ultimately discharging into the San Gabriel River Reach 1, the San Gabriel River Estuary, and the San Pedro Bay Near/Off Shore Zones.
Soil Type, Geology, and Infiltration Properties	Based on the Web Soil Survey for the site: On-site soils generally consist of metz loamy sand. Metz loamy sand is considered group B soils, which have a moderate infiltration rate when thoroughly wet. Based on the geotechnical report prepared for the site by Leighton Consulting, Inc. dated June 3, 2024: On-site soils generally consist of artificial fill (from existing development), young alluvium, silt, sand, silty sand, and lean clay, extending to the maximum boring termination depth of about 51½ below ground surface. One infiltration test was performed on-site with 4.74 in/hr. Accounting for a safety factor of 3.0, the design infiltration rate is 1.58 in/hr.
Hydrogeologic (Groundwater) Conditions	According to the North Orange County Mapped Depth to First Groundwater Map, Attachment E, groundwater was observed at a depth of 5-10 feet below ground surface. According to the geotechnical report, groundwater seepage was observed at 13.3 and 10 feet below ground surface.
Geotechnical Conditions (relevant to infiltration)	One infiltration test was performed on-site with 4.74 in/hr. Accounting for a safety factor of 3.0, the design infiltration rate is 1.58 in/hr. Due to the high groundwater encountered at 10 ft below ground surface, infiltration is proposed to treat the maximum extent while providing sufficient separation between the infiltrating surface and groundwater surface.
Off-Site Drainage	The site may have run-on from Buena Park Montessori to the northeast of the project site through existing wall weep hole.
Utility and Infrastructure Information	Water, gas, sewer, electrical, and communication lines are located in the public right of way adjacent to the site. A new connection will be made to all utilities as part of these improvements.

III.3 Watershed Description

Fill out table with relevant information and include information regarding BMP sizing, suitability, and feasibility, as applicable. *Refer to Section 2.3.3 in the TGD.*

Receiving Waters	Coyote Creek, San Gabriel River Reach 1, San Gabriel River Estuary, San Pedro Bay Near/Off Shore Zones
303(d) Listed Impairments	Metals, Pesticides, Total Toxics, pH (other cause), Pathogens, Toxic Inorganics, Oil and Grease, Nutrients, Toxic Organics
Applicable TMDLs	Metals, Pesticides, Total Toxics, pH (other cause), Pathogens, Toxic Inorganics, Oil and Grease, Nutrients, Toxic Organics
Pollutants of Concern for the Project	Suspended-Solid/Sediment, Nutrients, Heavy Metals, Pathogens (Bacteria/Virus), Pesticides, Oil and Grease, Toxic Organic Compounds, and Trash and Debris
Environmentally Sensitive and Special Biological Significant Areas	N/A

Section IV Best Management Practices (BMPs)

IV.1 Project Performance Criteria

Describe project performance criteria. Several steps must be followed in order to determine what performance criteria will apply to a project. These steps include:

- If the project has an approved WIHMP or equivalent, then any watershed specific criteria must be used and the project can evaluate participation in the approved regional or sub-regional opportunities. The local Permittee planning or NPDES staff should be consulted regarding the existence of an approved WIHMP or equivalent.
- Determine applicable hydromodification control performance criteria. *Refer to Section 7.II-2.4.2.2 of the Model WQMP.*
- Determine applicable LID performance criteria. *Refer to Section 7.II-2.4.3 of the Model WQMP.*
- Determine applicable treatment control BMP performance criteria. *Refer to Section 7.II-*3.2.2 *of the Model WQMP.*
- Calculate the LID design storm capture volume for the project. *Refer to Section 7.II-2.4.3 of the Model WQMP.*

(NOC Permit Area only) Is there an approved WIHMP or equivalent for the project area that includes more stringent LID feasibility criteria or if there are opportunities identified for implementing LID on regional or sub-regional basis?	YES ☐	NO ☒
If yes, describe WIHMP feasibility criteria or regional/sub-regional LID opportunities.		

Project Performance Criteria (continued)	
If HCOC exists, list applicable hydromodification control performance criteria (Section 7.II-2.4.2.2 in MWQMP)	N/A; there is no HCOC applicable to this project.
List applicable LID performance criteria (Section 7.II-2.4.3 from MWQMP)	• Priority projects must infiltrate, harvest and use, evapotranspire, or biotreat / biofilter, the 85th percentile, 24-hour storm event (Design Capture Volume) • A properly designed biotreatment system may only be considered if infiltration, harvest and use, and evapotranspiration (ET) cannot be feasibly implemented for the full design capture volume. In this case, infiltration, harvest and use, and ET practices must be implemented to the greatest extent feasible and biotreatment may be provided for the remaining design capture volume.
List applicable treatment control BMP performance criteria (Section 7.II-3.2.2 from MWQMP)	If not feasible to meet the LID performance criteria though retention and / or biotreatment provided on-site or at a sub-regional / regional scale, then treatment control BMPs shall be provided on-site or off-site prior to discharge to waters of the US. Sizing of treatment control BMP(s) shall be based on either the unmet volume after claiming applicable water quality credits, if appropriate (see Section 7.II-3.1 Water Quality Credits) and as calculated in TGD Appendix VI. If treatment control BMPs can treat all the remaining unmet volume and have a medium to high effectiveness for reducing the primary POCs, the project is in compliance; a waiver application and participation in an alternative program is not required.
Calculate LID design storm capture volume for Project.	**Design Capture Flow Calculations:** Design Storm Depth: 0.90 in HSCs (d_{HSC}): 0 in Remaining Storm Depth ($d_{remainder}$): 0.90 in Tributary Area: 1.03 Acres Impervious (imp): 0.81 unitless

	Runoff Coefficient: 0.76 unitless (C = (0.75 x imp) + 0.15) Time of Concentration from Fig D-1 from OC Hydrology Manual: 6.1 min Design intensity (i) from Fig III.4 from OC TGD at Tc = 6.1 min: 0.26 in/hr Design Capture flow: 0.203 cfs (Q = C x I x A) Provided MWS Flow rate: 0.231 cfs > 0.203 cfs required **Design Capture Volume Calculations:** Project Tributary Area (A): 1.03 acres Project Imperious (imp): 0.81 unitless Runoff Coefficient (C): 0.76 unitless (C = (0.75 x imp) + 0.15) Design Capture Volume: 2,549 cu-ft (DCV = (C x $d_{remainder}$ x A x 43,560 x (1/12))

IV.2. SITE DESIGN AND DRAINAGE PLAN

Describe site design and drainage plan including

- A narrative of site design practices utilized or rationale for not using practices;
- A narrative of how site is designed to allow BMPs to be incorporated to the MEP
- A table of DMA characteristics and list of LID BMPs proposed in each DMA.
- Reference to the WQMP plot plan.
- Calculation of Design Capture Volume (DCV) for each drainage area.
- A listing of GIS coordinates for LID and Treatment Control BMPs (unless not required by local jurisdiction).

Refer to Section 2.4.2 in the TGD.

To meet the City of Buena Park's Water Quality requirements, the site has been designed to surface flow storm water runoff into two (2) bioretention basins and two (2) drop inlets fitted with BioClean Catch Basin Filter Inserts for full trash capture. The drop inlets will capture the runoff for the 24-hour 85th percentile storm event and convey it to one (1) modular wetland system (MWS). The bioretention basins will infiltrate treated flows and water can pond up to 6" before it enters overflow device and routed to the MWS. Treated flows and overflow from the MWS will be pumped through a proposed parkway drain to the eastern gutter of Hoffman Street.

Three (3) DMAs, labeled as DMA 1, 2, and 3 in Attachment B, is proposed for the total drainage area of 1.03-acre or 45,045 sq-ft. No Hydrologic Source Control is proposed, so our design storm depth remains the same as 0.90 inch. The design flow rate is 0.203 cfs for 1.03-acre at our property location with 79.9% impervious surface. Runoff within DMA 1 is treated with a MWS that has 0.231 cfs flow rate capacity. Runoff within DMA 2 and 3 are treated with their respective bioretention basins where treated flows infiltrate the soil.

Due to the high groundwater, encountered at 10 ft below ground surface, and limited available locations for bioretention basins, we proposed to infiltrate to the maximum extent feasible while meeting the groundwater separation for infiltration BMPs recommended in the OC TGD. Overflow will enter the bioretention basin overflow device and will be routed to the MWS.

The Design Capture Volume (DCV) is 2,549 cu-ft but is treated between the two bioretention basins and the MWS. The bioretention basin in DMA 2 can treat 736 cu-ft, bioretention basin in DMA 3 can treat 530 cu-ft, and the remaining 1,283 cu-ft is treated by the MWS. The proposed MWS location is approximately 33.833, -118.025. The two bioretention basins' locations are approximately 33.831, -118.024 and 33.832, -118.025.

Design Capture Flow Calculations:
Design Storm Depth: 0.90 in
HSCs (d_{HSC}): 0 in

Remaining Storm Depth ($d_{remainder}$): 0.90 in
Tributary Area: 1.03 Acres
Impervious (imp): 0.81 unitless
Runoff Coefficient: 0.76 unitless (C = (0.75 x imp) + 0.15)
Time of Concentration from Fig D-1 from OC Hydrology Manual: 6.1 min
Design intensity (i) from Fig III.4 from OC TGD at Tc = 6.1 min: 0.26 in/hr
Design Capture Flow: 0.203 cfs (Q = C x I x A)

Design Capture Volume Calculations:
Project Tributary Area (A): 1.03 acres
Project Imperious (imp): 0.81 unitless
Runoff Coefficient (C): 0.76 unitless (C = (0.75 x imp) + 0.15)
Design Capture Volume: 2,549 cu-ft (DCV = (C x $d_{remainder}$ x A x 43,560 x (1/12))

IV.3 LID BMP SELECTION AND PROJECT CONFORMANCE ANALYSIS

Each sub-section below documents that the proposed design features conform to the applicable project performance criteria via check boxes, tables, calculations, narratives, and/or references to worksheets. *Refer to Section 2.4.2.3 in the TGD for selecting LID BMPs and Section 2.4.3 in the TGD for conducting conformance analysis with project performance criteria.*

IV.3.1 Hydrologic Source Controls

If required HSCs are included, fill out applicable check box forms. If the retention criteria are otherwise met with other LID BMPs, include a statement indicating HSCs not required.

Name	Included?
Localized on-lot infiltration	☐
Impervious area dispersion (e.g. roof top disconnection)	☐
Street trees (canopy interception)	☐
Residential rain barrels (not actively managed)	☐
Green roofs/Brown roofs	☐
Blue roofs	☐
Impervious area reduction (e.g. permeable pavers, site design)	☐
Other:	☐
Other:	☐
Other:	☐
Other:	☐
Other:	☐
Other:	☐
Other:	☐
Other:	☐

IV.3.2 Infiltration BMPs

Identify infiltration BMPs to be used in project. If design volume cannot be met state why BMPs cannot be met

Name	Included?
Bioretention without underdrains	☒
Rain gardens	☐
Porous landscaping	☐
Infiltration planters	☐
Retention swales	☐
Infiltration trenches	☐
Infiltration basins	☐
Drywells	☐
Subsurface infiltration galleries	☐
French drains	☐
Permeable asphalt	☐
Permeable concrete	☐
Permeable concrete pavers	☐
Other:	☐
Other:	☐

Show calculations below to demonstrate if the LID Design Storm Capture Volume can be met with infiltration BMPs. If not document how much can be met with infiltration and document why it is not feasible to meet the full volume with infiltration BMPs.

Based on the Geotechnical Report prepared by Leighton Consulting, Inc. dated June 3, 2024, on-site groundwater seepage was observed at 13.3 and 10 ft below ground surface. We follow the Geotechnical Report's use of 10 ft below ground surface for our design. Our site has portions of fill and cut, which were considered in BMP selection and placement. Our site is not suitable for infiltration BMPs requiring a 10 ft groundwater separation as they would need to be on surface, very shallow, and therefore have very low infiltration capacity. We are unable to meet the full Design Capture Volume (DCV) (2,549 cu-ft) and meet 5 ft groundwater separation with the proposed site, so we propose to treat to the maximum extent feasible volume for our site, which is about 1,266 cu-ft total between two (2) bioretention areas without underdrains. The remaining 1,283 cu-ft of the DCV will be treated by one (1) Modular Wetland System (MWS), a proprietary vegetated biotreatment system. Calculation for DCV below:

Project Tributary Area (A): 1.03 acres
Project Imperious (imp): 0.81 unitless
Runoff Coefficient (C): 0.76 unitless (C = (0.75 x imp) + 0.15)
Design Capture Volume: 2,549 cu-ft (DCV = (C x $d_{remainder}$ x A x 43,560 x (1/12))

IV.3.3 Evapotranspiration, Rainwater Harvesting BMPs

If the full Design Storm Capture Volume cannot be met with infiltration BMPs, describe any evapotranspiration, rainwater harvesting BMPs.

Name	Included?
All HSCs; *See Section IV.3.1*	☐
Surface-based infiltration BMPs	☐
Biotreatment BMPs	☐
Above-ground cisterns and basins	☐
Underground detention	☐
Other:	☐
Other:	☐
Other:	☐

Show calculations below to demonstrate if the LID Design Strom Capture Volume can be met with evapotranspiration, rainwater harvesting BMPs in combination with infiltration BMPs. If not document how much can be met with either infiltration BMPs, evapotranspiration, rainwater harvesting BMPs, or a combination, and document why it is not feasible to meet the full volume with either of these BMPs categories.

Evapotranspiration, Rainwater Harvesting BMP's are not proposed onsite as there is insufficient irrigation demand onsite.

IV.3.4 Biotreatment BMPs

If the full Design Storm Capture Volume cannot be met with infiltration BMPs, and/or evapotranspiration and rainwater harvesting BMPs, describe biotreatment BMPs. Include sections for selection, suitability, sizing, and infeasibility, as applicable.

Name	Included?
Bioretention with underdrains	☐
Stormwater planter boxes with underdrains	☐
Rain gardens with underdrains	☐
Constructed wetlands	☐
Vegetated swales	☐
Vegetated filter strips	☐
Proprietary vegetated biotreatment systems	☒
Wet extended detention basin	☐
Dry extended detention basins	☐
Other:	☐
Other:	☐

Show calculations below to demonstrate if the LID Design Strom Capture Volume can be met with infiltration, evapotranspiration, rainwater harvesting and/or biotreatment BMPs. If not document how much can be met with either infiltration BMPs, evapotranspiration, rainwater harvesting BMPs, or a combination, and document why it is not feasible to meet the full volume with either of these BMPs categories.

The proposed Modular Wetlands System will be sized to provide treatment for the 85th percentile storm. Calculation for Design Capture Flow rate is provided below:

Design Storm Depth: 0.90 in
HSCs (d_{HSC}): 0 in
Remaining Storm Depth ($d_{remainder}$): 0.90 in
Tributary Area: 1.03 Acres
Impervious (imp): 0.81 unitless
Runoff Coefficient: 0.76 unitless (C = (0.75 x imp) + 0.15)
Time of Concentration from Fig D-1 from OC Hydrology Manual: 6.1 min
Design intensity (i) from Fig III.4 from OC TGD at Tc = 6.1 min: 0.26 in/hr
Design Capture Flow for site: 0.203 cfs (Q = C x I x A)

IV.3.5 Hydromodification Control BMPs

Describe hydromodification control BMPs. See Section 5 TGD. Include sections for selection, suitability, sizing, and infeasibility, as applicable. Detail compliance with Prior Conditions of Approval.

Hydromodification Control BMPs	
BMP Name	**BMP Description**

IV.3.6 Regional/Sub-Regional LID BMPs

Describe regional/sub-regional LID BMPs in which the project will participate. *Refer to Section 7.II-2.4.3.2 of the Model WQMP.*

Regional/Sub-Regional LID BMPs
Not applicable to this project.

IV.3.7 Treatment Control BMPs

Treatment control BMPs can only be considered if the project conformance analysis indicates that it is not feasible to retain the full design capture volume with LID BMPs. Describe treatment control BMPs including sections for selection, sizing, and infeasibility, as applicable.

Treatment Control BMPs	
BMP Name	**BMP Description**
Bio-Clean Drop Inlet Filter	Bio-Clean drop inlet filters will be installed at all on-site catch basins to meet the State Board full trash capture requirements.

IV.3.8 Non-structural Source Control BMPs

Fill out non-structural source control check box forms or provide a brief narrative explaining if non-structural source controls were not used.

Non-Structural Source Control BMPs

Identifier	Name	Check One		If not applicable, state brief reason
		Included	Not Applicable	
N1	Education for Property Owners, Tenants and Occupants	☒	☐	Owner shall familiarize him/herself with the contents of this WQMP and furnish copies of BMP factsheets to all future tenants.
N2	Activity Restrictions	☐	☒	No activity restrictions planned for site.
N3	Common Area Landscape Management	☒	☐	Landscape crews contracted shall inspect irrigation system and health of landscaping and shall report all repairs or problems to owner. Routine landscaping maintenance shall be done according to CASQC SC-73 fact sheet.
N4	BMP Maintenance	☒	☐	The building site owners or contracted license crews shall inspect the infiltration basins after each landscape procedure and shall report all drainage problems to owner. The owner shall also check the basins for erosion and sediment buildup and standing water 48 hours after storm events. Building site owner or contracted maintenance crew shall inspect underground infiltration system annually prior to the rainy season. Sediment buildup shall be removed as necessary. The filter in the inlet shall be inspected annually and replaced as necessary. Building site owner or contracted maintenance crew

				shall inspect the underground infiltration system annually prior to the rainy season. BMP maintenance shall be performed per the schedule in Form 5-1 of this WQMP.
N5	Title 22 CCR Compliance (How development will comply)	☐	☒	No hazardous waste is defined for site.
N6	Local Industrial Permit Compliance	☐	☒	Not fuel dispensing or other area of concern to public property.
N7	Spill Contingency Plan	☐	☒	No hazardous materials expected on-site.
N8	Underground Storage Tank Compliance	☐	☒	No underground storage tank on-site.
N9	Hazardous Materials Disclosure Compliance	☐	☒	No hazardous materials on-site.
N10	Uniform Fire Code Implementation	☒	☐	All fire code requirements shall be implemented, regardless of product stored.
N11	Common Area Litter Control	☒	☐	A program shall be implemented to pick up litter and sweep and clean the existing trash enclosures on a daily basis. Trash enclosures are designed to divert all flows around the enclosure. All dumpsters will have lids installed and will be inspected to ensure that the dumpsters remain covered and leak-proof. The owner shall ensure tenants contract with a refuse company to have the dumpsters emptied on a weekly basis, at a minimum.
N12	Employee Training	☒	☐	Property owner shall establish an educational program for site employees and contractors to inform and train personnel engaged in maintenance activities regarding the impact of dumping oil, paint, solvents, or other potentially harmful chemicals into the storm drain

				system; the use of fertilizers and pesticides in landscaping maintenance practices; and the impacts of litter and improper waste disposal.
N13	Housekeeping of Loading Docks	☐	☒	No loading docks.
N14	Common Area Catch Basin Inspection	☒	☐	The on-site catch basins shall be inspected monthly during the rainy season (October-May) and before and after each storm to ensure proper operation. The owner shall contract with a qualified landscape contractor to inspect and clean out accumulation of trash, litter, and sediment and check for evidence of illegal dumping of waste materials into on-site drains.
N15	Street Sweeping Private Streets and Parking Lots	☒	☐	Parking lots shall be swept weekly to prevent sediment, garden waste, and trash, or other pollutants from entering on-site drains and public storm channels. Sweeping will be done by a landscape contractor or other contractor provided by the owner.
N16	Retail Gasoline Outlets	☐	☒	No gasoline outlets.

IV.3.9 Structural Source Control BMPs

Fill out structural source control check box forms or provide a brief narrative explaining if Structural source controls were not used.

Structural Source Control BMPs				
Identifier	**Name**	**Check One**		**If not applicable, state brief reason**
		Included	**Not Applicable**	
S1	Provide storm drain system stenciling and signage	☒	☐	
S2	Design and construct outdoor material storage areas to reduce pollution introduction	☐	☒	No outdoor material storage proposed
S3	Design and construct trash and waste storage areas to reduce pollution introduction	☒	☐	
S4	Use efficient irrigation systems & landscape design, water conservation, smart controllers, and source control	☒	☐	
S5	Protect slopes and channels and provide energy dissipation	☐	☒	No slopes / channels to be disturbed as part of this project.
	Incorporate requirements applicable to individual priority project categories (from SDRWQCB NPDES Permit)	☒	☐	
S6	Dock areas	☐	☒	No dock areas proposed
S7	Maintenance bays	☐	☒	No maintenance bays proposed
S8	Vehicle wash areas	☐	☒	No vehicle wash areas proposed
S9	Outdoor processing areas	☐	☒	No outdoor processing areas proposed
S10	Equipment wash areas	☐	☒	No equipment wash areas proposed
S11	Fueling areas	☐	☒	No fueling areas proposed
S12	Hillside landscaping	☐	☒	No hillside landscaping proposed
S13	Wash water control for food preparation areas	☒	☐	Wash water for food preparation areas will be discharged to the on-site grease interceptor.
S14	Community car wash racks	☐	☒	No community car wash racks proposed

IV.4 ALTERNATIVE COMPLIANCE PLAN (IF APPLICABLE)

IV.4.1 Water Quality Credits

Determine if water quality credits are applicable for the project. *Refer to Section 3.1 of the Model WQMP for description of credits and Appendix VI of the TGD for calculation methods for applying water quality credits.*

<table>
<tr><th colspan="5">Description of Proposed Project</th></tr>
<tr><td colspan="5">Project Types that Qualify for Water Quality Credits (Select all that apply):</td></tr>
<tr><td colspan="2">☐Redevelopment projects that reduce the overall impervious footprint of the project site.</td><td colspan="2">☐Brownfield redevelopment, meaning redevelopment, expansion, or reuse of real property which may be complicated by the presence or potential presence of hazardous substances, pollutants or contaminants, and which have the potential to contribute to adverse ground or surface WQ if not redeveloped.</td><td>☐ Higher density development projects which include two distinct categories (credits can only be taken for one category): those with more than seven units per acre of development (lower credit allowance); vertical density developments, for example, those with a Floor to Area Ratio (FAR) of 2 or those having more than 18 units per acre (greater credit allowance).</td></tr>
<tr><td colspan="2">☐ Mixed use development, such as a combination of residential, commercial, industrial, office, institutional, or other land uses which incorporate design principles that can demonstrate environmental benefits that would not be realized through single use projects (e.g. reduced vehicle trip traffic with the potential to reduce sources of water or air pollution).</td><td colspan="2">☐ Transit-oriented developments, such as a mixed use residential or commercial area designed to maximize access to public transportation; similar to above criterion, but where the development center is within one half mile of a mass transit center (e.g. bus, rail, light rail or commuter train station). Such projects would not be able to take credit for both categories, but may have greater credit assigned</td><td>☐ Redevelopment projects in an established historic district, historic preservation area, or similar significant city area including core City Center areas (to be defined through mapping).</td></tr>
<tr><td>☐Developments with dedication of undeveloped portions to parks, preservation areas and other pervious uses.</td><td>☐ Developments in a city center area.</td><td>☐ Developments in historic districts or historic preservation areas.</td><td>☐ Live-work developments, a variety of developments designed to support residential and vocational needs together – similar to criteria to mixed use development; would not be able to take credit for both categories.</td><td>☐In-fill projects, the conversion of empty lots and other underused spaces into more beneficially used spaces, such as residential or commercial areas.</td></tr>
<tr><td>Calculation of Water Quality Credits
(if applicable)</td><td colspan="4"></td></tr>
</table>

IV.4.2 Alternative Compliance Plan Information

Describe an alternative compliance plan (if applicable). Include alternative compliance obligations (i.e., gallons, pounds) and describe proposed alternative compliance measures. *Refer to Section 7.II 3.0 in the WQMP.*

There are no applicable alternative compliance plans required for this site.

Section V Inspection/Maintenance Responsibility for BMPs

Fill out information in table below. Prepare and attach an Operation and Maintenance Plan. Identify the mechanism through which BMPs will be maintained. Inspection and maintenance records must be kept for a minimum of five years for inspection by the regulatory agencies. *Refer to Section 7.II 4.0 in the Model WQMP.*

BMP Inspection/Maintenance

BMP	Reponsible Party(s)	Inspection/ Maintenance Activities Required	Minimum Frequency of Activities
Bio-Clean Catch Basin Filter Insert	Owner	Refer to Operations and Maintenance in Appendix J	Quarterly and at least once before the beginning of the raining season (October 1st)
Modular Wetlands	Owner	Refer to Operations and Maintenance in Appendix J	Quarterly and at least once before the beginning of the raining season (October 1st)
"No Dumping" Storm Drain Stencil	Owner	Replace existing stencilling	As-needed
Nl - Education for Property Owners, Tenants and Occupants	Owner	The owner shall employ an educational program to staff encompassing importance of stormwater management and BMP implementation.	Upon initial employment; Annually thereafter

N2 – Activity Restrictions	Owner	The Project will establish the following policies prohibiting activities during operations. • Prohibit discharge of fertilizer, pesticide, or animal waste to street or storm drain. • Prohibit blowing or sweeping of debris (leaf litter, grass clippings, litter, etc.) into street or storm drain. • Require dumpster lid to be closed at all times. • Prohibit discharge of paint or masonry waste to street or storm drain • Prohibit vehicle washing, maintenance, or repair on premises.	Varies by BMP
N3 - Common Area Landscape Management	Owner	The owner shall direct maintenance staff to employ landscaping practices be consistent with the City of Santa Ana requirements for use of fertilizer, pesticides, and City ordinances for water conservation.	Quarterly, as seasons change
N4-BMP Maintenance	Owner	The following BMPs and practices shall be employed and regularly maintained: Site Design BMPs • SD-10 Site Design &	Varies by BMP

		Landscape Planning • SD-12 Efficient Irrigation • SD-13 Storm Drain Signage • SD-32 Trash Storage Areas Source Control BMPs • SC-10 Non-Stormwater Discharges • SC-11 Spill Prevention, Control and Cleanup • SC-41 Building and Grounds Maintenance • SC-44 Drainage System Maintenance	
N10 Uniform Fire Code Implementation	Owner	• Fire riser is located at the northwest corner of the building. • Sewer cleanout is located on the north face of the building. • During a fire sprinkler test, the fire riser discharge shall be connected by a hose to the sewer cleanout. • See the note in Fact Sheet SC-41 "Building and Ground Maintenance"	Regularly (2 times a year minimum) or as determined necessary.
N12 Employee Training	Owner	The owner shall employ an educational program to staff encompassing importance of stormwater management and BMP implementation.	Upon initial employment; Annually thereafter

N14 Common Area Catch Basin Inspection	Owner	• Immediate repair of any deterioration threatening structural integrity. • Cleaning as frequently as necessary to prevent from reaching 40% full • Inspect and repair/replace stencilling as necessary • Clean catch basins/inlets before wet season to remove sediments and debris accumulated during the summer • Conduct inspections more frequently during the wet season for problem areas where sediment or trash accumulates more often. Clean and repair as needed. • Keep accurate logs of the number of catch basins cleaned • Store waste collected from cleaning activities of the drainage system in appropriate containers or temporary storage sites in a manner that prevents discharge to the storm drain • Dewater the wastes if necessary. Properly dispose of de-watered material.	Quarterly, as seasons change

N15 Street Sweeping Private Streets and Parking Lots	Owner	• Plaza, sidewalks, and parking lots shall be swept regularly to prevent accumulation of litter and debris • All paved surfaces must be power cleaned at least one time a year or more as required to prevent polluted runoff. • Debris from pressure washing shall be collected to prevent entry into the storm drain system. Washwater containing any cleaning agent or degreaser shall be collected and discharged to the sanitary sewer and not discharged to a storm drain. • See Fact Sheets SC-43 "Parking/Storage Area Maintenance" and SC-70 "Road and Street Maintenance"	Daily

Section VI Site Plan and Drainage Plan

VI.1 SITE PLAN AND DRAINAGE PLAN

Include a site plan and drainage plan sheet set containing the following minimum information:

- Project location
- Site boundary
- Land uses and land covers, as applicable
- Suitability/feasibility constraints
- Structural BMP locations
- Drainage delineations and flow information
- Drainage connections
- BMP details

VI.2 ELECTRONIC DATA SUBMITTAL

WQMP documents must be submitted to the City of Buena Park www.Box.com account for review. These documents shall be submitted in a PDF format. Format must not require specialized software to open.

If the local jurisdiction requires specialized electronic document formats (CAD, GIS) to be submitted, this section will be used to describe the contents (e.g., layering, nomenclature, georeferencing, etc.) of these documents so that they may be interpreted efficiently and accurately.

Each approved WQMP (including BMP Exhibit, Operations and Maintenance (O&M) Plan, and Appendices) shall be recorded in the Orange County Clerk-Recorder's Office, prior to close-out of grading and/or building permit. Educational Materials are not required to be included.

Section VII Educational Materials

Refer to the OC Stormwater Program (ocwatersheds.com) for a library of materials available. For the copy submitted to the Permittee, only attach the educational materials specifically applicable to the project. Other materials specific to the project may be included as well and must be attached.

Education Materials

Residential Material (http://www.ocwatersheds.com)	Check If Applicable	Business Material (http://www.ocwatersheds.com)	Check If Applicable
The Ocean Begins at Your Front Door	☒	Tips for the Automotive Industry	☐
Tips for Car Wash Fund-raisers	☐	Tips for Using Concrete and Mortar	☒
Tips for the Home Mechanic	☐	Tips for the Food Service Industry	☒
Homeowners Guide for Sustainable Water Use	☐	Proper Maintenance Practices for Your Business	☒
Household Tips	☐	**Other Material**	**Check If Attached**
Proper Disposal of Household Hazardous Waste	☐		
Recycle at Your Local Used Oil Collection Center (North County)	☐	IC 7 - Tips for Landscape Maintenance	☒
Recycle at Your Local Used Oil Collection Center (Central County)	☐	IC 15 - Tips for Parking and Storage Area Maintenance	☒
Recycle at Your Local Used Oil Collection Center (South County)	☐	IC 21 - Waste Handling and Disposal	☒
Tips for Maintaining a Septic Tank System	☐	IC 22 – Eating and Drinking Establishments	☒
Responsible Pest Control	☐	IC 23 – Fire Sprinkler Testing	☒
Sewer Spill	☐		☐
Tips for the Home Improvement Projects	☐		☐
Tips for Horse Care	☐		☐
Tips for Landscaping and Gardening	☐		☐
Tips for Pet Care	☐		☐
Tips for Pool Maintenance	☐		☐
Tips for Residential Pool, Landscape and Hardscape Drains	☐		☐
Tips for Projects Using Paint	☐		☐

IC7. LANDSCAPE MAINTENANCE

Best Management Practices (BMPs)

A BMP is a technique, measure or structural control that is used for a given set of conditions to improve the quality of the stormwater runoff in a cost effective manner[1]. The minimum required BMPs for this activity are outlined in the box to the right. Implementation of pollution prevention/good housekeeping measures may reduce or eliminate the need to implement other more costly or complicated procedures. Proper employee training is key to the success of BMP implementation.

MINIMUM BEST MANAGEMENT PRACTICES

Pollution Prevention/Good Housekeeping

- Properly store and dispose of gardening wastes.
- Use mulch or other erosion control measures on exposed soils.
- Properly manage irrigation and runoff.
- Properly store and dispose of chemicals.
- Properly manage pesticide and herbicide use.
- Properly manage fertilizer use.

Stencil storm drains

Training

- Train employees on these BMPs, storm water discharge prohibitions, and wastewater discharge requirements.
- Provide on-going employee training in pollution prevention.

The BMPs outlined in this fact sheet target the following pollutants:

Targeted Constituents	
Sediment	x
Nutrients	x
Floatable Materials	x
Metals	
Bacteria	x
Oil & Grease	
Organics & Toxicants	
Pesticides	x
Oxygen Demanding	x

Provided below are specific procedures associated with each of the minimum BMPs along with procedures for additional BMPs that should be considered if this activity takes place at a facility located near a sensitive waterbody. In order to meet the requirements for medium and high priority facilities, the owners/operators must select, install and maintain appropriate BMPs on site. Since the selection of the appropriate BMPs is a site-specific process, the types and numbers of additional BMPs will vary for each facility.

1. Take steps to reduce landscape maintenance requirements.
    - Where feasible, retain and/or plant native vegetation with features that are determined to be beneficial. Native vegetation usually requires less maintenance than planting new vegetation.
    - When planting or replanting consider using low water use flowers, trees, shrubs, and groundcovers.
    - Consider alternative landscaping techniques such as naturescaping and xeriscaping.
2. Properly store and dispose of gardening wastes.
    - Dispose of grass clippings, leaves, sticks, or other collected vegetation as garbage at a permitted landfill or by composting.
    - Do not dispose of gardening wastes in streets, waterways, or storm drainage systems.
    - Place temporarily stockpiled material away from watercourses and storm drain inlets, and berm and/or cover.
3. Use mulch or other erosion control measures on exposed soils.

[1] EPA " *Preliminary Data Summary of Urban Stormwater Best Management Practices"*

4. Properly manage irrigation and runoff.
    - Irrigate slowly or pulse irrigate so the infiltration rate of the soil is not exceeded.
    - Inspect irrigation system regularly for leaks and to ensure that excessive runoff is not occurring.
    - If re-claimed water is used for irrigation, ensure that there is no runoff from the landscaped area(s).
    - If bailing of muddy water is required (e.g. when repairing a water line leak), do not put it in the storm drain; pour over landscaped areas.
    - Use automatic timers to minimize runoff.
    - Use popup sprinkler heads in areas with a lot of activity or where pipes may be broken. Consider the use of mechanisms that reduce water flow to broken sprinkler heads.
5. Properly store and dispose of chemicals.
    - Implement storage requirements for pesticide products with guidance from the local fire department and/or County Agricultural Commissioner.
    - Provide secondary containment for chemical storage.
    - Dispose of empty containers according to the instructions on the container label.
    - Triple rinse containers and use rinse water as product.
6. Properly manage pesticide and herbicide use.
    - Follow all federal, state, and local laws and regulations governing the use, storage, and disposal of pesticides and herbicides and training of applicators and pest control advisors.
    - Follow manufacturers' recommendations and label directions.
    - Use pesticides only if there is an actual pest problem (not on a regular preventative schedule). When applicable use less toxic pesticides that will do the job. Avoid use of copper-based pesticides if possible. Use the minimum amount of chemicals needed for the job.
    - Do not apply pesticides if rain is expected or if wind speeds are above 5 mph.
    - Do not mix or prepare pesticides for application near storm drains. Prepare the minimum amount of pesticide needed for the job and use the lowest rate that will effectively control the targeted pest.
    - Whenever possible, use mechanical methods of vegetation removal rather than applying herbicides. Use hand weeding where practical.
    - Do not apply any chemicals directly to surface waters, unless the application is approved and permitted by the state. Do not spray pesticides within 100 feet of open waters.
    - Employ techniques to minimize off-target application (e.g. spray drift) of pesticides, including consideration of alternative application techniques.
    - When conducting mechanical or manual weed control, avoid loosening the soil, which could lead to erosion.
    - Purchase only the amount of pesticide that you can reasonably use in a given time period.
    - Careful soil mixing and layering techniques using a topsoil mix or composted organic material can be used as an effective measure to reduce herbicide use and watering.
7. Properly manage fertilizer use.
    - Follow all federal, state, and local laws and regulations governing the use, storage, and disposal of fertilizers.
    - Follow manufacturers' recommendations and label directions.
    - Employ techniques to minimize off-target application (e.g. spray drift) of fertilizer, including consideration of alternative application techniques. Calibrate fertilizer distributors to avoid excessive application.
    - Periodically test soils for determining proper fertilizer use.
    - Fertilizers should be worked into the soil rather than dumped or broadcast onto the surface.
    - Sweep pavement and sidewalk if fertilizer is spilled on these surfaces before applying irrigation water.
    - Use slow release fertilizers whenever possible to minimize leaching

8. Incorporate the following integrated pest management techniques where appropriate:
    - Mulching can be used to prevent weeds where turf is absent.
    - Remove insects by hand and place in soapy water or vegetable oil. Alternatively, remove insects with water or vacuum them off the plants.
    - Use species-specific traps (e.g. pheromone-based traps or colored sticky cards).
    - Sprinkle the ground surface with abrasive diatomaceous earth to prevent infestations by soft-bodied insects and slugs. Slugs also can be trapped in small cups filled with beer that are set in the ground so the slugs can get in easily.
    - In cases where microscopic parasites, such as bacteria and fungi, are causing damage to plants, the affected plant material can be removed and disposed of (pruning equipment should be disinfected with bleach to prevent spreading the disease organism).
    - Small mammals and birds can be excluded using fences, netting, and tree trunk guards.
    - Promote beneficial organisms, such as bats, birds, green lacewings, ladybugs, praying mantis, ground beetles, parasitic nematodes, trichogramma wasps, seedhead weevils, and spiders that prey on detrimental pest species.

Training

1. Train employees on these BMPs, storm water discharge prohibitions, and wastewater discharge requirements.
2. Educate and train employees on the use of pesticides and pesticide application techniques. Only employees properly trained to use pesticides can apply them.
3. Train and encourage employees to use integrated pest management techniques.
4. Train employees on proper spill containment and cleanup.
    - Establish training that provides employees with the proper tools and knowledge to immediately begin cleaning up a spill.
    - Ensure that employees are familiar with the site's spill control plan and/or proper spill cleanup procedures.
    - Fact sheet IC17 discusses Spill Prevention and Control in detail.
5. Establish a regular training schedule, train all new employees, and conduct annual refresher training.
6. Use a training log or similar method to document training.

Stencil storm drains

Storm drain system signs act as highly visible source controls that are typically stenciled directly adjacent to storm drain inlets. Stencils should read "No Dumping Drains to Ocean".

References

California Storm Water Best Management Practice Handbook. Industrial and Commercial. 2003. www.cabmphandbooks.com

California Storm Water Best Management Practice Handbooks. Industrial/Commercial Best Management Practice Handbook. Prepared by Camp Dresser& McKee, Larry Walker Associates, Uribe and Associates, Resources Planning Associates for Stormwater Quality Task Force. March 1993.

King County Stormwater Pollution Control Manual. Best Management Practices for Businesses. King County Surface Water Management. July 1995. On-line: http://dnr.metrokc.gov/wlr/dss/spcm.htm

Stormwater Management Manual for Western Washington. Volume IV Source Control BMPs. Prepared by Washington State Department of Ecology Water Quality Program. Publication No. 99-14. August 2001.

Water Quality Handbook for Nurseries. Oklahoma Cooperative Extension Service. Division of Agricultural Sciences and Natural Resources. Oklahoma State University. E-951. September 1999.

For additional information contact:

County of Orange/ OC Watersheds
Main: (714) 955-0600
24 hr Water Pollution Hotline: 1-877-89-SPILL
or visit our website at www.ocwatersheds.com

IC15. PARKING AND STORAGE AREA MAINTENANCE

Best Management Practices (BMPs)

A BMP is a technique, measure or structural control that is used for a given set of conditions to improve the quality of the stormwater runoff in a cost effective manner[1]. The minimum required BMPs for this activity are outlined in the box to the right. Implementation of pollution prevention/good housekeeping measures may reduce or eliminate the need to implement other more costly or complicated procedures. Proper employee training is key to the success of BMP implementation.

MINIMUM BEST MANAGEMENT PRACTICES

Pollution Prevention/Good Housekeeping

- Conduct regular cleaning.
- Properly collect and dispose of wash water.
- Keep the parking and storage areas clean and orderly.
- Use absorbent materials and properly dispose of them when cleaning heavy oily deposits.
- When conducting surface repair work cover materials and clean paintbrushes and tools appropriately.

Stencil storm drains

Training

- Train employees on these BMPs, storm water discharge prohibitions, and wastewater discharge requirements.
- Provide on-going employee training in pollution prevention.

The BMPs outlined in this fact sheet target the following pollutants:

Targeted Constituents	
Sediment	x
Nutrients	x
Floatable Materials	x
Metals	x
Bacteria	x
Oil & Grease	x
Organics & Toxicants	x
Pesticides	x
Oxygen Demanding	x

Provided below are specific procedures associated with each of the minimum BMPs along with procedures for additional BMPs that should be considered if this activity takes place at a facility located near a sensitive waterbody. In order to meet the requirements for medium and high priority facilities, the owners/operators must select, install and maintain appropriate BMPs on site. Since the selection of the appropriate BMPs is a site-specific process, the types and numbers of additional BMPs will vary for each facility.

1. Conduct regular cleaning.
    - Sweeping or vacuuming the parking facility is encouraged over other methods.
    - Sweep all parking lots at least once before the onset of the wet season.
    - Establish frequency of sweeping based on usage and field observations of waste accumulation.
2. Properly collect and dispose of wash water.
    - Block the storm drain or contain runoff.
    - Wash water should be collected and pumped to the sanitary sewer or discharged to a pervious surface, do not allow wash water to enter storm drains. Refer to fact sheet *IC24 Wastewater Disposal* for guidance on appropriate methods for disposal of wash water to the sanitary sewer.
    - Dispose of parking lot sweeping debris and dirt at a landfill.
3. Consider use of source treatment BMPs to treat runoff.
    - Allow sheet runoff to flow into biofilters (vegetated strip and swale) and/or infiltration devices.
    - Utilize sand filters or oleophilic collectors for oily waste in low quantities.

[1] EPA " *Preliminary Data Summary of Urban Stormwater Best Management Practices"*

4. Keep the parking and storage areas clean and orderly.
    - Clean out and cover litter receptacles frequently to prevent spillage.
    - Remove debris in a timely fashion.

    OPTIONAL:
    - Post "No Littering" signs.
5. When cleaning heavy oily deposits:
    - If possible, clean oily spots with absorbent materials.
    - Do not allow discharges to the storm drain.
    - Appropriately dispose of spilled materials and absorbents.
6. When conducting surface repair work:
    - Pre-heat, transfer or load hot bituminous material away from storm drain inlets.
    - Conduct surface repair work during dry weather to prevent contamination from contacting stormwater runoff.
    - Cover and seal nearby storm drain inlets (with waterproof material or mesh) and manholes before applying seal coat, slurry seal, etc. Leave covers in place until job is complete and clean any debris for proper disposal.
    - To avoid runoff, use only as much water as necessary for dust control.
    - Use drip pans or absorbent material to catch drips from paving equipment that is not in use. Dispose of collected material and absorbents properly.
7. Conduct inspections on a regular basis.
    - Designate personnel to conduct inspections of the parking facilities and stormwater conveyance systems associated with them.
    - Inspect cleaning equipment/sweepers for leaks on a regular basis.
8. Keep accurate maintenance logs to evaluate materials removed/stored and improvements made.
9. Arrange rooftop drains to prevent drainage directly onto paved surfaces.

Training

1. Train employees on these BMPs, storm water discharge prohibitions, and wastewater discharge requirements.
2. Train employees on proper spill containment and cleanup.
    - Establish training that provides employees with the proper tools and knowledge to immediately begin cleaning up a spill.
    - Ensure that employees are familiar with the site's spill control plan and/or proper spill cleanup procedures.
    - Fact sheet IC17 discusses Spill Prevention and Control in detail.
3. Provide regular training to field employees and/or contractors regarding cleaning of paved areas and proper operation of equipment.
4. Establish a regular training schedule, train all new employees, and conduct annual refresher training.
5. Use a training log or similar method to document training.

Stencil storm drains

Storm drain system signs act as highly visible source controls that are typically stenciled directly adjacent to storm drain inlets. Stencils should read "No Dumping Drains to Ocean".

References

California Storm Water Best Management Practice Handbook. Industrial and Commercial. 2003. www.cabmphandbooks.com

California Storm Water Best Management Practice Handbooks. Industrial/Commercial Best Management Practice Handbook. Prepared by Camp Dresser& McKee, Larry Walker Associates, Uribe and Associates, Resources Planning Associates for Stormwater Quality Task Force. March 1993.

King County Stormwater Pollution Control Manual. Best Management Practices for Businesses. King County Surface Water Management. July 1995. On-line: http://dnr.metrokc.gov/wlr/dss/spcm.htm

Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities. Prepared by City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality Control Board. July 1998 (Revised February 2002 by the California Coastal Commission).

Stormwater Management Manual for Western Washington. Volume IV Source Control BMPs. Prepared by Washington State Department of Ecology Water Quality Program. Publication No. 99-14. August 2001.

For additional information contact:

County of Orange/ OC Watersheds
Main: (714) 955-0600
24 hr Water Pollution Hotline: 1-877-89-SPILL
or visit our website at www.ocwatersheds.com

IC21. WASTE HANDLING AND DISPOSAL

Best Management Practices (BMPs)

A BMP is a technique, measure or structural control that is used for a given set of conditions to improve the quality of the stormwater runoff in a cost effective manner[1]. The minimum required BMPs for this activity are outlined in the box to the right. Implementation of pollution prevention/good housekeeping measures may reduce or eliminate the need to implement other more costly or complicated procedures. Proper employee training is key to the success of BMP implementation.

MINIMUM BEST MANAGEMENT PRACTICES

Pollution Prevention/Good Housekeeping

- Prevent waste materials from coming in direct contact with wind or rain. .
- Keep waste collection areas clean.
- Secure solid waste containers when not in use.
- Regularly inspect, repair, and/or replace waste containers.
- Use all of a product before disposing of the container.
- Label and store hazardous wastes according to hazardous waste regulations.

Stencil storm drains

Training

- Train employees on these BMPs, storm water discharge prohibitions, and wastewater discharge requirements.
- Provide on-going employee training in pollution prevention.

The BMPs outlined in this fact sheet target the following pollutants:

Targeted Constituents	
Sediment	x
Nutrients	x
Floatable Materials	x
Metals	x
Bacteria	x
Oil & Grease	x
Organics & Toxicants	x
Pesticides	x
Oxygen Demanding	x

Provided below are specific procedures associated with each of the minimum BMPs along with procedures for additional BMPs that should be considered if this activity takes place at a facility located near a sensitive waterbody. In order to meet the requirements for medium and high priority facilities, the owners/operators must select, install and maintain appropriate BMPs on site. Since the selection of the appropriate BMPs is a site-specific process, the types and numbers of additional BMPs will vary for each facility.

1. Prevent waste materials from coming in direct contact with wind or rain.
    - Cover the waste management area with a permanent roof.
    - If this is not feasible, cover waste piles with temporary covering material such as reinforced tarpaulin, polyethylene, polyurethane, polypropylene, or hypalon.
    - Cover dumpsters to prevent rain from washing out waste materials.
2. Design waste handling and disposal area to prevent stormwater runon.
    - Enclose the waste handling and disposal area or build a berm around it.
    - Position roof downspouts to direct stormwater away from waste handling and disposal area.
3. Design waste handling and disposal area to contain spills.
    - Place dumpsters or other waste receptacles on an impervious surface.
    - Construct a berm around the area to contain spills.
    - Install drains connected to the public sewer or the facility's process wastewater system within these contained areas. DO NOT discharge to a public sewer until contacting the local sewer authority to find out if pretreatment is required.

[1] EPA " *Preliminary Data Summary of Urban Stormwater Best Management Practices"*

4. Keep waste collection areas clean.
    - When cleaning around waste handling and disposal areas use dry methods when possible (e.g. sweeping, use of absorbents).
    - If water must be used, collect water and discharge to the sewer if permitted to do so. DO NOT discharge to a public sewer until contacting the local sewer authority to find out if pretreatment is required. If discharge to the sanitary sewer is not allowed, pump water to a tank and dispose of properly.
    - Post "No Littering" signs.
5. Secure solid waste containers when not in use.
6. Regularly inspect, repair, and/or replace waste containers.
7. Do not fill waste containers with washout water or any other liquid.
8. Use all of a product before disposing of the container.
9. Segregate wastes by type and label and date wastes.
    - Do not mix wastes; this can cause chemical reactions, make recycling impossible, and complicate disposal.
    - Ensure that only appropriate solid wastes are added to solid waste containers.
    - Certain wastes such as hazardous wastes, appliances, fluorescent lamps, pesticides, etc. may not be disposed of in solid waste containers.
10. Label and store hazardous wastes according to hazardous waste regulations.
    - Consult your local hazardous waste agency or Fire Department for details.
    - Obtain a hazardous waste generator license or permit if necessary.
12. Minimize waste.
    - Recycle materials whenever possible.
    - Modify processes or equipment to increase efficiency.
    - Identify and promote use of non-hazardous alternatives.
    - Reduction in the amount of waste generated can be accomplished using many different types of source controls such as:
        - Production planning and sequencing
        - Process or equipment modification
        - Raw material substitution or elimination
        - Loss prevention and housekeeping
        - Waste segregation and separation
        - Close loop recycling
    - Establish a material tracking system to increase awareness about material usage. This may reduce spills and minimize contamination, thus reducing the amount of waste produced.

Training

1. Train employees on these BMPs, storm water discharge prohibitions, and wastewater discharge requirements.
2. Train employees in proper waste handling and disposal.
3. Train employees on proper spill containment and cleanup.
    - Establish training that provides employees with the proper tools and knowledge to immediately begin cleaning up a spill.
    - Ensure that employees are familiar with the site's spill control plan and/or proper spill cleanup procedures.
    - Fact sheet IC17 discusses Spill Prevention and Control in detail.

4. Establish a regular training schedule, train all new employees, and conduct annual refresher training.
5. Use a training log or similar method to document training.

Stencil storm drains

Storm drain system signs act as highly visible source controls that are typically stenciled directly adjacent to storm drain inlets. Stencils should read “No Dumping Drains to Ocean”.

References

California Storm Water Best Management Practice Handbook. Industrial and Commercial. 2003. www.cabmphandbooks.com

California Storm Water Best Management Practice Handbooks. Industrial/Commercial Best Management Practice Handbook. Prepared by Camp Dresser& McKee, Larry Walker Associates, Uribe and Associates, Resources Planning Associates for Stormwater Quality Task Force. March 1993.

Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities. Prepared by City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality Control Board. July 1998 (Revised February 2002 by the California Coastal Commission).

For additional information contact:

County of Orange/ OC Watersheds
Main: (714) 955-0600
24 hr Water Pollution Hotline: 1-877-89-SPILL
or visit our website at www.ocwatersheds.com

IC22. EATING AND DRINKING ESTABLISHMENTS

Best Management Practices (BMPs)

A BMP is a technique, measure or structural control that is used for a given set of conditions to improve the quality of the stormwater runoff in a cost effective manner[1]. The minimum required BMPs for this activity are outlined in the box to the right. Implementation of pollution prevention/good housekeeping measures may reduce or eliminate the need to implement other more costly or complicated procedures. Proper employee training is key to the success of BMP implementation.

MINIMUM BEST MANAGEMENT PRACTICES

Pollution Prevention/Good Housekeeping

- Use dry cleaning methods instead of water
- Clean equipment (floor mats, grease filters, grills, garbage cans, etc.) indoors or in a covered outdoor wash area that is plumbed to the sanitary sewer or in an area that will contain the wash water (Refer to fact sheet *IC24 Wastewater Disposal* for guidance on appropriate methods for disposal of wash water to the sanitary sewer).
- Recycle and/or properly dispose of grease and oil.
- Block the storm drain when hosing or steam/pressure washing outside dumpster areas, sidewalks, and common areas.

Stencil storm drains

Training

- Train employees on these BMPs, storm water discharge prohibitions, and wastewater discharge requirements.

The BMPs outlined in this fact sheet target the following pollutants:

Targeted Constituents	
Sediment	
Nutrients	x
Floatable Materials	x
Metals	
Bacteria	x
Oil & Grease	x
Organics & Toxicants	x
Pesticides	x
Oxygen Demanding	x

Provided below are specific procedures associated with each of the minimum BMPs along with procedures for additional BMPs that should be considered if this activity takes place at a facility located near a sensitive waterbody. In order to meet the requirements for medium and high priority facilities, the owners/operators must select, install and maintain appropriate BMPs on site. Since the selection of the appropriate BMPs is a site-specific process, the types and numbers of additional BMPs will vary for each facility.

1. Practice good housekeeping.
    - Conduct regular sweeping or vacuuming of outdoor areas: Dry sweep pavement areas including "drive-thru" areas, parking lots, sidewalks, outdoor eating areas and dumpster storage areas frequently.
    - Keep outside areas free of trash & debris.
    - Do not hose out dumpsters or fill them with liquid waste.
    - Regularly inspect, repair, and/or replace dumpsters.
2. Clean equipment (floor mats, grease filters, grills, garbage cans, etc.) indoors or in a covered outdoor wash area that is plumbed to the sanitary sewer.
    - Clean equipment in a mop sink if possible (never in a food preparation sink). If there is no mop sink, dedicate an indoor cleaning area where a drain is plumbed to the sanitary sewer.
    - Dispose mop water from cleaning floors in a mop sink, toilet or other drain that is plumbed to the sanitary sewer. Refer to fact sheet *IC24 Wastewater Disposal* for guidance on appropriate methods for disposal of wash water to the sanitary sewer.
    - Do not pour wash water outside or into a street, gutter, or storm drain.

[1] EPA " *Preliminary Data Summary of Urban Stormwater Best Management Practices"*

- Dispose of all wastewater containing oil and grease in a grease trap or interceptor.

3. Recycle and/or properly dispose of grease and oil. Collect and dispose of concentrated waste oil and grease and disposed of by a certified waste grease hauler. NEVER pour grease or oil into a sink, floor drain, storm drain or dumpster.
4. Block storm drain(s) when cleaning (hosing or steam/pressure washing) outside dumpster areas, sidewalks, and common areas with hot water, soap, or other cleaning agent. Collect water/waste and discharge to the sanitary sewer (with approval of the local sanitation district).

Training

1. Train employees on these BMPs, storm water discharge prohibitions, and wastewater discharge requirements.
2. Train employees on proper spill containment and cleanup.
    - Establish training that provides employees with the proper tools and knowledge to immediately begin cleaning up a spill.
    - Ensure that employees are familiar with the site's spill control plan and/or proper spill cleanup procedures.
    - Fact sheet IC17 discusses Spill Prevention and Control in detail.
3. Establish a regular training schedule, train all new employees, and conduct annual refresher training.
4. Use a training log or similar method to document training.

Stencil storm drains

Storm drain system signs act as highly visible source controls that are typically stenciled directly adjacent to storm drain inlets. Stencils should read "No Dumping Drains to Ocean".

References

California Storm Water Best Management Practice Handbook. Industrial and Commercial. 2003. www.cabmphandbooks.com

Carlsbad Jurisdictional Urban Runoff Management Plan. Best Management Practices for Restaurants. City of Carlsbad. February 2002. On-line: http://www.ci.carlsbad.ca.us/cserv/jurmp.html

Orange County Stormwater Program. 2001. Water Quality Guidelines for Exterior Restaurant Cleaning Operations. Brochure. June.

Orange County Stormwater Program. Good Cleaning Practices Food & Restaurant Industry. Poster. Courtesy of the City and County of LA.

For additional information contact:

County of Orange/ OC Watersheds
Main: (714) 955-0600
24 hr Water Pollution Hotline: 1-877-89-SPILL
or visit our website at www.ocwatersheds.com

IC23. FIRE SPRINKLER TESTING/MAINTENANCE

Best Management Practices (BMPs)

A BMP is a technique, measure or structural control that is used for a given set of conditions to improve the quality of the stormwater runoff in a cost effective manner[1]. The minimum required BMPs for this activity are outlined in the box to the right. Implementation of pollution prevention/good housekeeping measures may reduce or eliminate the need to implement other more costly or complicated procedures. Proper employee training is key to the success of BMP implementation.

Provided below are specific procedures associated with this activity. In order to meet the requirements for medium and high priority facilities, the owners/operators must select, install and maintain appropriate BMPs on site. Since the selection of the appropriate BMPs is a site-specific process, the types and numbers of additional BMPs will vary for each facility.

MINIMUM BEST MANAGEMENT PRACTICES

Pollution Prevention/Good Housekeeping

- Conduct activity on non-rainy days and for the shortest duration possible to minimize discharge volume.
- Inspect flow path and remove all debris and materials prior to testing or maintenance.

Training

- Train employees on these BMPs, storm water discharge prohibitions, and wastewater discharge requirements.
- Provide on-going employee training in pollution prevention.

The BMPs outlined in this fact sheet target the following pollutants:

Targeted Constituents	
Sediment	
Nutrients	
Floatable Materials	
Metals	x
Bacteria	
Oil & Grease	x
Organics & Toxicants	
Pesticides	
Oxygen Demanding	

Best Management Practices

1. Contain flows onsite and/or direct the water flows to landscaped or green areas whenever possible and safe to do so without causing damage or erosion.
2. Divert sprinkler system flows to the sewer, when practicable and with the permission of the local sewer agency. Refer to fact sheet *IC24 Wastewater Disposal* for guidance on appropriate methods for disposal of wash water to the sanitary sewer.
3. Training
   a. Train employees on these BMPs, storm water discharge prohibitions, and wastewater discharge requirements.
   b. Establish a regular training schedule, train all new employees, and conduct annual refresher training.
   c. Use a training log or similar method to document training.

References

California Storm Water Best Management Practice Handbooks. Industrial/Commercial Best Management Practice Handbook. Prepared by Camp Dresser& McKee, Larry Walker Associates for California Stormwater Quality Association. January 2003.

For additional information contact:

County of Orange/ OC Watersheds
Main: (714) 955-0600
24 hr Water Pollution Hotline: 1-877-89-SPILL
or visit our website at www.ocwatersheds.com

[1] EPA " *Preliminary Data Summary of Urban Stormwater Best Management Practices"*

The Ocean Begins at Your Front Door

Follow these simple steps to help reduce water pollution:

Household Activities

- Do not rinse spills with water. Use dry cleanup methods such as applying cat litter or another absorbent material, sweep and dispose of in the trash. Take items such as used or excess batteries, oven cleaners, automotive fluids, painting products and cathode ray tubes, like TVs and computer monitors, to a Household Hazardous Waste Collection Center (HHWCC).
- For a HHWCC near you call (714) 834-6752 or visit www.oclandfills.com.
- Do not hose down your driveway, sidewalk or patio to the street, gutter or storm drain. Sweep up debris and dispose of it in the trash.

Automotive

- Take your vehicle to a commercial car wash whenever possible. If you wash your vehicle at home, choose soaps, cleaners, or detergents labeled non-toxic, phosphate- free or biodegradable. Vegetable and citrus-based products are typically safest for the environment.
- Do not allow washwater from vehicle washing to drain into the street, gutter or storm drain. Excess washwater should be disposed of in the sanitary sewer (through a sink or toilet) or onto an absorbent surface like your lawn.
- Monitor your vehicles for leaks and place a pan under leaks. Keep your vehicles well maintained to stop and prevent leaks.
- Never pour oil or antifreeze in the street, gutter or storm drain. Recycle these substances at a service station, a waste oil collection center or used oil recycling center. For the nearest Used Oil Collection Center call 1-800-CLEANUP or visit www.1800cleanup.org.

Pool Maintenance

- Pool and spa water must be dechlorinated and free of excess acid, alkali or color to be allowed in the street, gutter or storm drain.
- When it is not raining, drain dechlorinated pool and spa water directly into the sanitary sewer.
- Some cities may have ordinances that do not allow pool water to be disposed of in the storm drain. Check with your city.

Landscape and Gardening

- Do not over-water. Water your lawn and garden by hand to control the amount of water you use or set irrigation systems to reflect seasonal water needs. If water flows off your yard onto your driveway or sidewalk, your system is over-watering. Periodically inspect and fix leaks and misdirected sprinklers.
- Do not rake or blow leaves, clippings or pruning waste into the street, gutter or storm drain. Instead, dispose of waste by composting, hauling it to a permitted landfill, or as green waste through your city's recycling program.
- Follow directions on pesticides and fertilizer, (measure, do not estimate amounts) and do not use if rain is predicted within 48 hours.
- Take unwanted pesticides to a HHWCC to be recycled. For locations and hours of HHWCC, call (714) 834-6752 or visit www.oclandfills.com.

Trash

- Place trash and litter that cannot be recycled in securely covered trash cans.
- Whenever possible, buy recycled products.
- Remember: Reduce, Reuse, Recycle.

Pet Care

- Always pick up after your pet. Flush waste down the toilet or dispose of it in the trash. Pet waste, if left outdoors, can wash into the street, gutter or storm drain.
- If possible, bathe your pets indoors. If you must bathe your pet outside, wash it on your lawn or another absorbent/permeable surface to keep the washwater from entering the street, gutter or storm drain.
- Follow directions for use of pet care products and dispose of any unused products at a HHWCC.

Common Pollutants

Home Maintenance

- Detergents, cleaners and solvents
- Oil and latex paint
- Swimming pool chemicals
- Outdoor trash and litter

Lawn and Garden

- Pet and animal waste
- Pesticides
- Clippings, leaves and soil
- Fertilizer

Automobile

- Oil and grease
- Radiator fluids and antifreeze
- Cleaning chemicals
- Brake pad dust

The Ocean Begins at Your Front Door

Never allow pollutants to enter the street, gutter or storm drain!

Did You Know?

- Most people believe that the largest source of water pollution in urban areas comes from specific sources such as factories and sewage treatment plants. In fact, the largest source of water pollution comes from city streets, neighborhoods, construction sites and parking lots. This type of pollution is sometimes called “non-point source” pollution.
- There are two types of non-point source pollution: stormwater and urban runoff pollution.
- Stormwater runoff results from rainfall. When rainstorms cause large volumes of water to rinse the urban landscape, picking up pollutants along the way.
- Urban runoff can happen any time of the year when excessive water use from irrigation, vehicle washing and other sources carries trash, lawn clippings and other urban pollutants into storm drains.

Where Does It Go?

- Anything we use outside homes, vehicles and businesses – like motor oil, paint, pesticides, fertilizers and cleaners – can be blown or washed into storm drains.
- A little water from a garden hose or rain can also send materials into storm drains.
- Storm drains are separate from our sanitary sewer systems; unlike water in sanitary sewers (from sinks or toilets), water in storm drains is not treated before entering our waterways.

Sources of Non-Point Source Pollution

- Automotive leaks and spills.
- Improper disposal of used oil and other engine fluids.
- Metals found in vehicle exhaust, weathered paint, rust, metal plating and tires.
- Pesticides and fertilizers from lawns, gardens and farms.
- Improper disposal of cleaners, paint and paint removers.
- Soil erosion and dust debris from landscape and construction activities.
- Litter, lawn clippings, animal waste, and other organic matter.
- Oil stains on parking lots and paved surfaces.

The Effect on the Ocean

Non-point source pollution can have a serious impact on water quality in Orange County. Pollutants from the storm drain system can harm marine life as well as coastal and wetland habitats. They can also degrade recreation areas such as beaches, harbors and bays.

Stormwater quality management programs have been developed throughout Orange County to educate and encourage the public to protect water quality, monitor runoff in the storm drain system, investigate illegal dumping and maintain storm drains.

Support from Orange County residents and businesses is needed to improve water quality and reduce urban runoff pollution. Proper use and disposal of materials will help stop pollution before it reaches the storm drain and the ocean.

For More Information

Orange County Stormwater Program

California Environmental Protection Agency
www.calepa.ca.gov

- **Air Resources Board**
  www.arb.ca.gov
- **Department of Pesticide Regulation**
  www.cdpr.ca.gov
- **Department of Toxic Substances Control**
  www.dtsc.ca.gov
- **Integrated Waste Management Board**
  www.ciwmb.ca.gov
- **Office of Environmental Health Hazard Assessment**
  www.oehha.ca.gov
- **State Water Resources Control Board**
  www.waterboards.ca.gov

Earth 911 - Community-Specific Environmental Information 1-800-cleanup or visit www.1800cleanup.org

Health Care Agency's Ocean and Bay Water Closure and Posting Hotline
(714) 433-6400 or visit www.ocbeachinfo.com

Integrated Waste Management Dept. of Orange County (714) 834-6752 or visit www.oclandfills.com for information on household hazardous waste collection centers, recycling centers and solid waste collection

O.C. Agriculture Commissioner
(714) 447-7100 or visit www.ocagcomm.com

Stormwater Best Management Practice Handbook
Visit www.cabmphandbooks.com

UC Master Gardener Hotline
(714) 708-1646 or visit www.uccemg.com

The Orange County Stormwater Program has created and moderates an electronic mailing list to facilitate communications, take questions and exchange ideas among its users about issues and topics related to stormwater and urban runoff and the implementation of program elements. To join the list, please send an email to ocstormwaterinfo-join@list.ocwatersheds.com

Aliso Viejo	(949)	425-2535
Anaheim Public Works Operations	(714)	765-6860
Brea Engineering	(714)	990-7666
Buena Park Public Works	(714)	562-3655
Costa Mesa Public Services	(714)	754-5323
Cypress Public Works	(714)	229-6740
Dana Point Public Works	(949)	248-3584
Fountain Valley Public Works	(714)	593-4441
Fullerton Engineering Dept.	(714)	738-6853
Garden Grove Public Works	(714)	741-5956
Huntington Beach Public Works	(714)	536-5431
Irvine Public Works	(949)	724-6315
La Habra Public Services	(562)	905-9792
La Palma Public Works	(714)	690-3310
Laguna Beach Water Quality	(949)	497-0378
Laguna Hills Public Services	(949)	707-2650
Laguna Niguel Public Works	(949)	362-4337
Laguna Woods Public Works	(949)	639-0500
Lake Forest Public Works	(949)	461-3480
Los Alamitos Community Dev.	(562)	431-3538
Mission Viejo Public Works	(949)	470-3056
Newport Beach, Code & Water Quality Enforcement	(949)	644-3215
Orange Public Works	(714)	532-6480
Placentia Public Works	(714)	993-8245
Rancho Santa Margarita	(949)	635-1800
San Clemente Environmental Programs	(949)	361-6143
San Juan Capistrano Engineering	(949)	234-4413
Santa Ana Public Works	(714)	647-3380
Seal Beach Engineering	(562)	431-2527 x317
Stanton Public Works	(714)	379-9222 x204
Tustin Public Works/Engineering	(714)	573-3150
Villa Park Engineering	(714)	998-1500
Westminster Public Works/Engineering	(714)	898-3311 x446
Yorba Linda Engineering	(714)	961-7138
Orange County Stormwater Program	(877)	897-7455

Orange County 24-Hour
Water Pollution Problem Reporting Hotline
1-877-89-SPILL (1-877-897-7455)

On-line Water Pollution Problem Reporting Form
w w w . o c w a t e r s h e d s . c o m

Printed on Recycled Paper

Clean beaches and healthy creeks, rivers, bays, and ocean are important to Orange County. However, many common activities can lead to water pollution if you're not careful. Materials and excess concrete or mortar can be blown or washed into the storm drains that flow to the ocean. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated before entering our waterways.

You would never throw building materials into the ocean, so don't let them enter the storm drains. Follow these easy tips to help prevent water pollution.

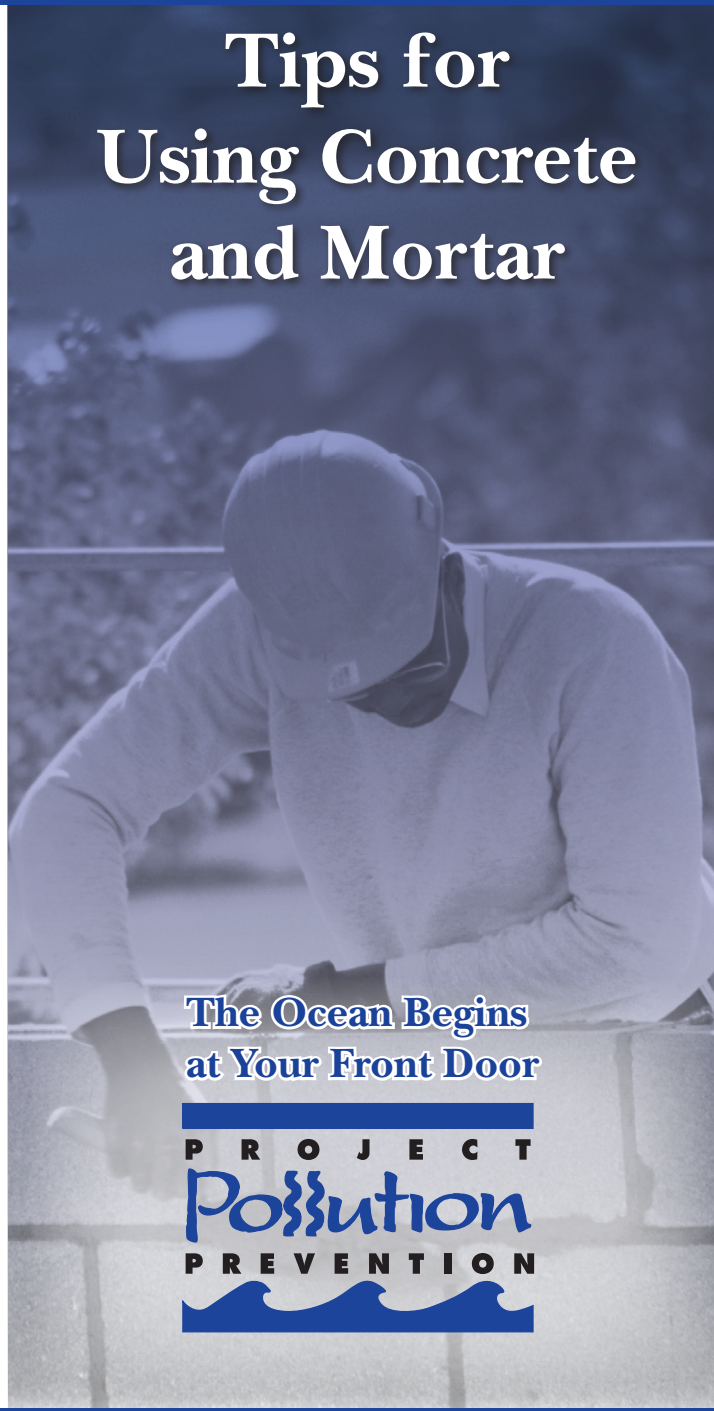
For more information, please call the **Orange County Stormwater Program** at **1-877-89-SPILL** (1-877-897-7455) or visit **www.ocwatersheds.com.**

To report a spill, call the **Orange County 24-Hour Water Pollution Reporting Hotline** at **1-877-89-SPILL** (1-877-897-7455).

For emergencies, dial 911.

The Tips contained in this brochure provide useful information about how you can keep materials and washwater from entering the storm drain system. If you have other suggestions for how water and materials may be contained, please contact your city's stormwater representative or call the Orange County Stormwater Program.

Tips for Using Concrete and Mortar



The Ocean Begins at Your Front Door

PROJECT Pollution PREVENTION

Tips for Using Concrete and Mortar

Never allow materials or washwater to enter the street or storm drain.

Before the Project

- Schedule projects for dry weather.
- Store materials under cover, with temporary roofs or plastic sheets, to eliminate or reduce the possibility that the materials can be carried from the project site to streets, storm drains or adjacent properties via rainfall, runoff or wind.
- Minimize waste by ordering only the amount of materials needed to complete the job.
- Take measures to block nearby storm drain inlets.

During the Project

- Set up and operate small mixers on tarps or heavy drop cloths.
- Do not mix more fresh concrete or cement than is needed for the job.

- When breaking up pavement, pick up all chunks and pieces and recycle them at a local construction and demolition recycling company. (See information to the right)
- When making saw cuts in pavement, protect nearby storm drain inlets during the saw-cutting operation and contain the slurry. Collect the slurry residue from the pavement or gutter and remove from the site.

Clean-Up

- Dispose of small amounts of dry concrete, grout or mortar in the trash.
- Never hose materials from exposed aggregate concrete, asphalt or similar treatments into a street, gutter, parking lot, or storm drain.
- Wash concrete mixers and equipment in designated washout areas where the water can flow into a containment area or onto dirt. Small amounts of dried material can be disposed of in the trash. Large amounts should be recycled at a local construction and demolition recycling company. (See information below)

- Recycle cement wash water by pumping it back into cement mixers for reuse.

Spills

- Never hose down pavement or impermeable surfaces where fluids have spilled. Use an absorbent material such as cat litter to soak up a spill, then sweep and dispose in the trash.
- Clean spills on dirt areas by digging up and properly disposing of contaminated dry soil in trash.
- Immediately report significant spills to the County's 24-Hour Water Pollution Problem Reporting Hotline at 714-567-6363 or log onto the County's website at www.ocwatersheds.com and fill out an incident reporting form.

For a list of construction and demolition recycling locations in your area visit www.ciwmb.ca.gov/Recycle/.

For additional information on how to control, prevent, remove, and reduce pollution refer to the Stormwater Best Management Practice Handbook, available on-line at www.cabmphandbooks.com.

How Can Food Service Establishments Prevent Water Pollution?

The food service industry is required to help prevent water pollution by using best management practices (BMPs) such as:

- Disposing food waste, grease and oil
- Cleaning up spills
- Maintaining dumpster receptacles
- Disposing washwater
- Cleaning floors and floor mats
- Providing regular employee training on spill cleanup procedures and washing practices

Look inside for more information on how to prevent runoff pollution.

Who is H_2OC?

H_2OC is YOU! H_2OC is also a cooperative stormwater program which includes all 34 cities in Orange County, the County of Orange, and Orange County Flood Control District (OCFCD). Clean and healthy beaches, creeks, rivers, bays, wetlands, and ocean are important to Orange County. H_2OC provides resources to residents and businesses to encourage personal action and prevent polluted runoff from entering our waterways.

Join Us

Visit **h2oc.org** to learn more about runoff, water pollution, and how you can be the solution to runoff pollution and protect our water resources!

Contact

24-hour Pollution Reporting Hotline:
1-877-89-SPILL (1-877-897-7455)

24-hour Reporting Website:
myOCeServices.ocgov.com

For emergencies, dial 911

Best Management Practices For Businesses

WATER POLLUTION AND THE FOOD SERVICE INDUSTRY

YOU ARE THE SOLUTION TO RUNOFF POLLUTION

H_2OC STORMWATER PROGRAM

How is Water Quality Affected By Food Service Establishments?

The food service industry generates a variety of waste products which can become pollutants. These include trash, cooking oil and grease, food scraps, and cleaning chemicals. If these waste products are not properly managed, rain, washwater, and wind can transport them to Orange County's creeks, rivers, and ocean through our storm drain system. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated before it is released into our creeks, rivers, and ocean and must never contain washwater, trash, grease, or other pollutants.

Here are BMPs for the food service industry to help keep our waterways clean:

FOOD WASTE DISPOSAL

- Scrape food waste off serving tables, plates, utensils, pots, food preparation and cooking areas, and dispose of it in the food waste (organics) bin or trash.
- Never put food waste down the drain. Food scraps often contain grease, which can clog sewer pipes and result in sewage backups and overflows.

GREASE & OIL DISPOSAL

- Dispose of used grease and oil in a covered, secure grease storage container. Never put oil or grease down the drain.
- Only fill your grease storage container to the manufacturer specified maximum volume and always keep the area clean.
- Regularly maintain grease control devices (like grease traps and interceptors) per the requirements of the City and local sanitation district.
- Keep service and maintenance records on site and readily available for inspection by regulatory agencies.
- For more information about proper grease and oil disposal, contact CalRecycle.ca.gov or your local sanitation district.

SPILL CLEANUP

- Control, contain, and clean up all spills.
- Never hose a spill.
- Clean up spills immediately with materials like rags, mops, or absorbents.
- Have spill containment and cleanup kits readily available and train all employees on how to use them.
- If any spill leaves your site, report it through the 24-hour Reporting Hotline or Website (see contact information on back panel).

DUMPSTER MAINTENANCE

- Sweep and pick up all debris around the dumpster daily.
- Always keep the lid on the dumpster closed when not in use.
- Never pour liquids into the dumpster or hose it out.
- Contact your waste and recycling service to repair or replace leaking or damaged dumpsters.
- When steam cleaning is required, ensure that washwater is contained, collected, and disposed in compliance with all codes. Washwater is prohibited from draining into the alley, parking lot, street, gutter, or storm drain.

WASHWATER DISPOSAL

- Dispose of washwater in an indoor mop sink or floor drain, preferably connected to the grease interceptor.
- Never dispose of washwater in the alley, parking lot, street, gutter, or storm drain.

FLOOR & FLOOR MAT CLEANING

- Sweep floors and floor mats regularly, discarding the debris into the trash.
- Clean all mats in a designated area such as an indoor mop sink or floor drain. Never allow floor or floor mat washwater to flow to the alley, parking lot, street, gutter or storm drain.

Preventing water pollution at your commercial/industrial site

Clean beaches and healthy creeks, rivers, bays and ocean are important to Orange County. However, many landscape and building maintenance activities can lead to water pollution if you're not careful. Paint, chemicals, plant clippings and other materials can be blown or washed into storm drains that flow to the ocean. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated before entering our waterways.

You would never pour soap or fertilizers into the ocean, so why would you let them enter the storm drains? Follow these easy tips to help prevent water pollution.

Some types of industrial facilities are required to obtain coverage under the State General Industrial Permit. For more information visit: **www.swrcb.ca.gov/stormwater/industrial.html**

For more information, please call the **Orange County Stormwater Program** at **1-877-89-SPILL** (1-877-897-7455) or visit **www.ocwatersheds.com**

To report a spill, call the **Orange County 24-Hour Water Pollution Problem Reporting Hotline** at **1-877-89-SPILL** (1-877-897-7455).

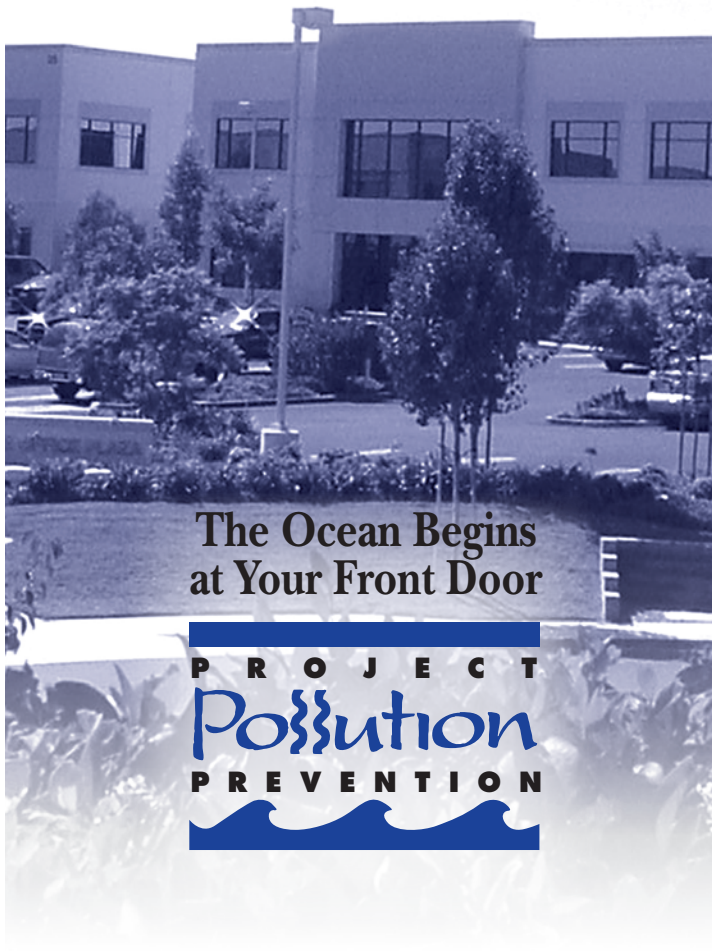
For emergencies, dial 911.

RECYCLE USED OIL

Printed on Recycled Paper

Help Prevent Ocean Pollution:

Proper Maintenance Practices for Your Business



The Ocean Begins at Your Front Door

PROJECT Pollution PREVENTION

Proper Maintenance Practices for your Business

Landscape Maintenance

- Compost grass clippings, leaves, sticks and other vegetation, or dispose of it at a permitted landfill or in green waste containers. Do not dispose of these materials in the street, gutter or storm drain.
- Irrigate slowly and inspect the system for leaks, overspraying and runoff. Adjust automatic timers to avoid overwatering.
- Follow label directions for the use and disposal of fertilizers and pesticides.
- Do not apply pesticides or fertilizers if rain is expected within 48 hours or if wind speeds are above 5 mph.
- Do not spray pesticides within 100 feet of waterways.
- Fertilizers should be worked into the soil rather than dumped onto the surface.
- If fertilizer is spilled on the pavement or sidewalk, sweep it up immediately and place it back in the container.

Building Maintenance

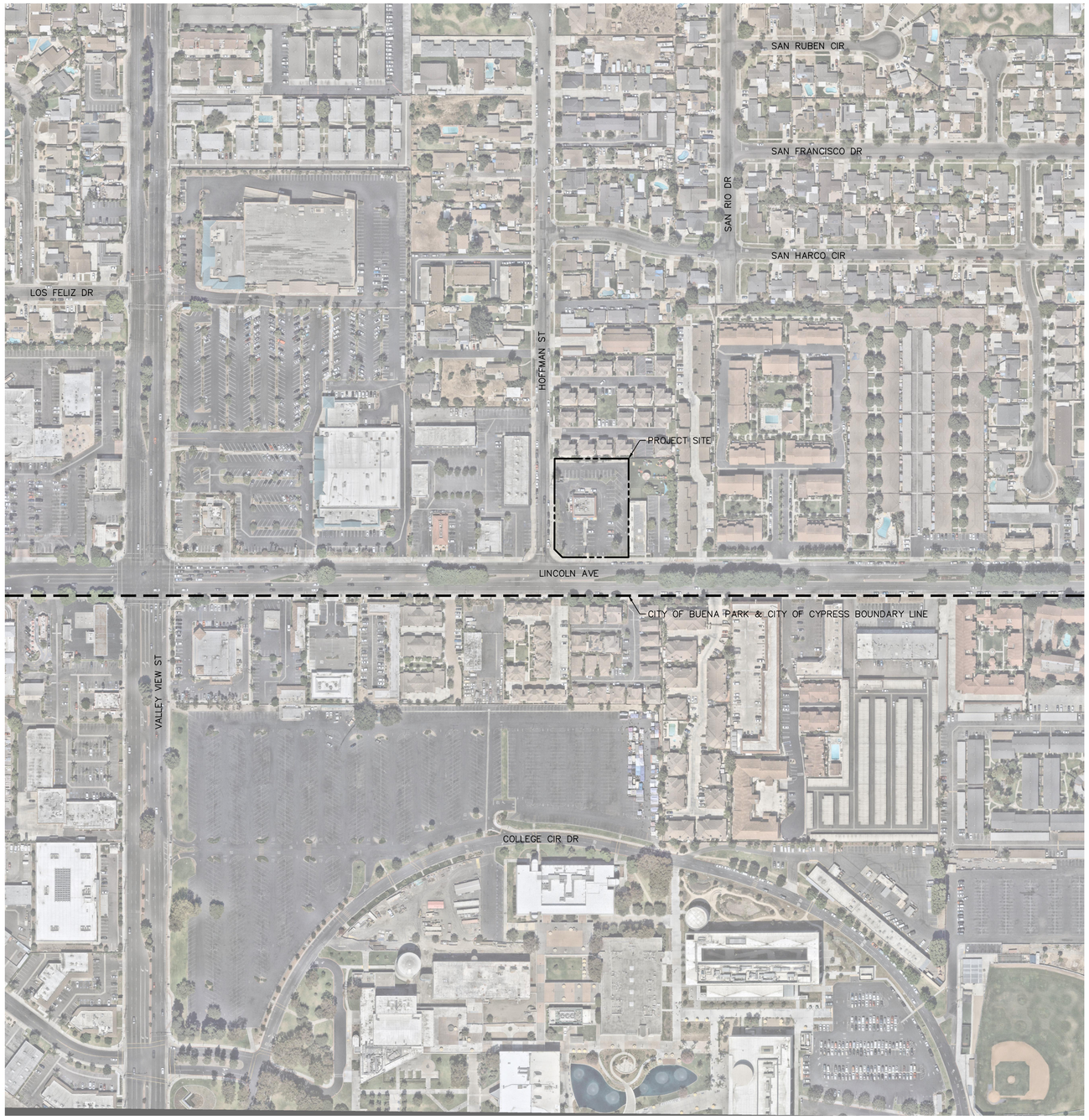
- Never allow washwater, sweepings or sediment to enter the storm drain.
- Sweep up dry spills and use cat litter, towels or similar materials to absorb wet spills. Dispose of it in the trash.
- If you wash your building, sidewalk or parking lot, you **must** contain the water. Use a shop vac to collect the water and contact your city or sanitation agency for proper disposal information. Do not let water enter the street, gutter or storm drain.
- Use drop cloths underneath outdoor painting, scraping, and sandblasting work, and properly dispose of materials in the trash.
- Use a ground cloth or oversized tub for mixing paint and cleaning tools.
- Use a damp mop or broom to clean floors.
- Cover dumpsters to keep insects, animals, rainwater and sand from entering. Keep the area around the dumpster clear of trash and debris. Do not overfill the dumpster.
- Call your trash hauler to replace leaking dumpsters.
- Do not dump any toxic substance or liquid waste on the pavement, the ground, or near a storm drain. Even materials that seem harmless such as latex paint or biodegradable cleaners can damage the environment.

NEVER DISPOSE OF ANYTHING IN THE STORM DRAIN.

- Recycle paints, solvents and other materials. For more information about recycling and collection centers, visit **www.oclandfills.com**.
- Store materials indoors or under cover and away from storm drains.
- Use a construction and demolition recycling company to recycle lumber, paper, cardboard, metals, masonry, carpet, plastic, pipes, drywall, rocks, dirt, and green waste. For a listing of construction and demolition recycling locations in your area, visit **www.ciwmb.ca.gov/recycle.**
- Properly label materials. Familiarize employees with Material Safety Data Sheets.

PROJECT Pollution PREVENTION

Attachment A: Vicinity Map



NORTH

GRAPHIC SCALE IN FEET
0 75 150 300

SCALE
1" = 20'
WHEN PRINTED AT FULL SIZE
(24"X36")

811
Know what's **below.**
Call before you dig.

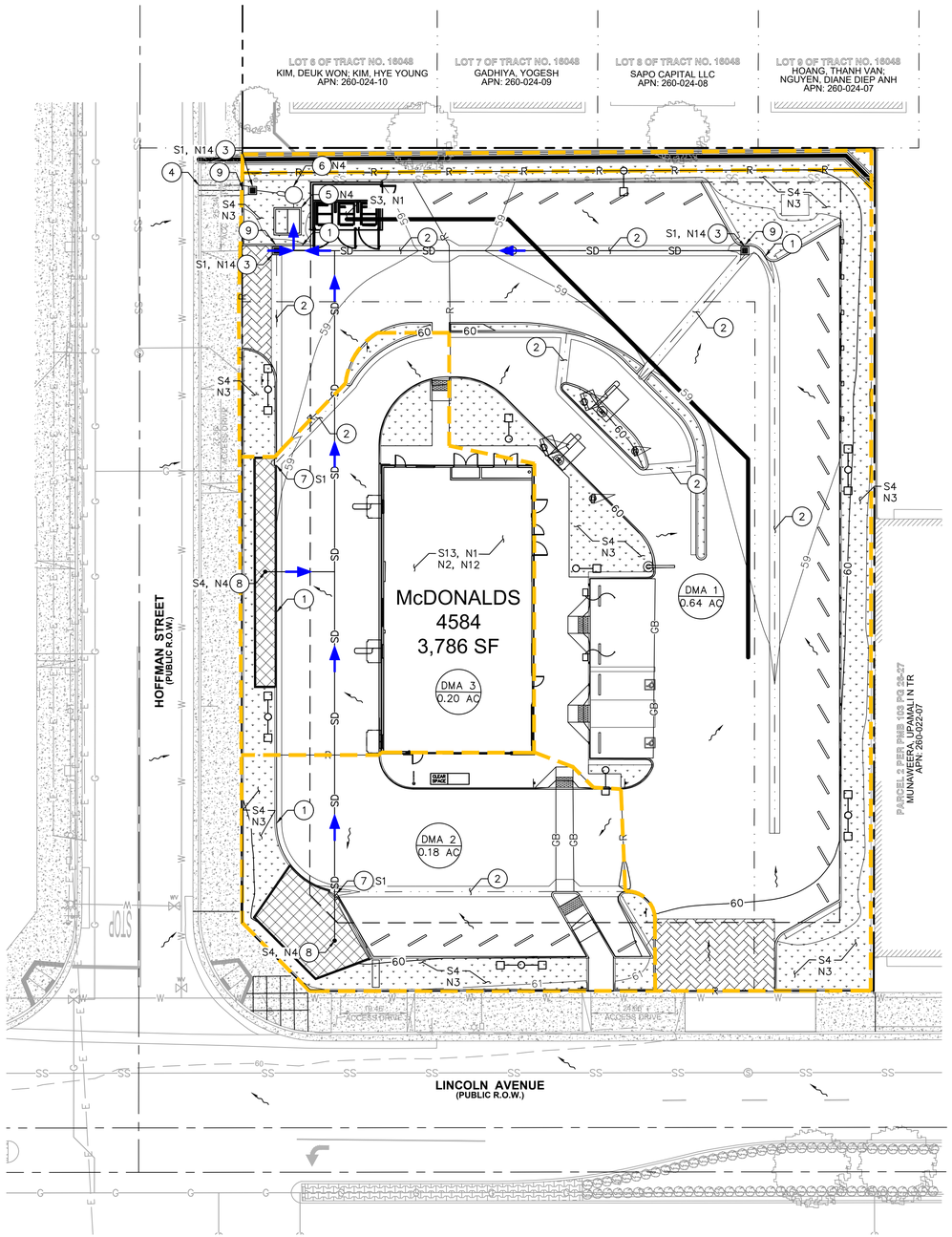
VICINITY MAP

DEPARTMENT OF PUBLIC WORKS
CITY OF BUENA PARK

DRAWING NO.

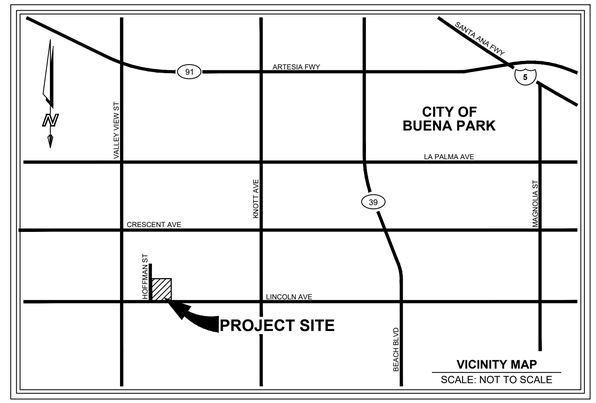
SHEET 1 OF 1

Attachment B: WQMP Site Plan



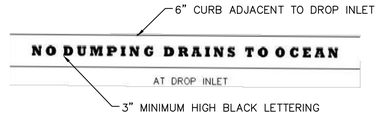
LEGEND

- CENTERLINE
- PROPERTY LINE
- RIGHT–OF–WAY LINE
- EASEMENT / SETBACK LINE
- LOT LINE
- DRAINAGE MANAGEMENT BOUNDARY
- SD — PROPOSED STORM DRAIN PIPE
- GB — GRADE BREAK LINE
- R — RIDGE LINE
- FLOW LINE
- PROPOSED CATCH BASIN
- PROPOSED MODULAR WETLAND SYSTEM
- PROPOSED STORM SUMP PUMP
- DIRECTION OF WATER FLOW
- DIRECTION OF PIPE FLOW
- LANDSCAPE AREA
- BIORETENTION BASIN
- DMA X / X.XX AC — DRAINAGE AREA LABEL



GRADING AND DRAINAGE NOTES

1. PROPOSED CONCRETE CURB AND GUTTER.
2. PROPOSED 3.0' WIDE CONCRETE VALLEY GUTTER.
3. 24" X 24" DROP INLET WITH CATCH BASIN FILTER INSERT FOR TRASH CAPTURE.
4. PROPOSED 3.0' WIDE PARKWAY DRAIN THROUGH CURB FACE.
5. PROPOSED MODULAR WETLAND SYSTEM.
6. PROPOSED PUMP.
7. PROPOSED 2.0' WIDE CURB CUT.
8. PROPOSED BIORETENTION BASIN WITH OVERFLOW DEVICE AND NO UNDERDRAIN.
9. INSTALL "NO DUMPING DRAINS TO OCEAN" STENCIL ON CURB ADJACENT TO CATCH BASIN PER DETAIL HEREON.

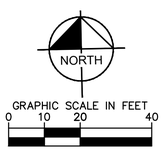


STENCIL DETAIL
N.T.S.

WQMP BMP'S

DMA #	TOTAL DRAINAGE AREA (SF)	IMPERVIOUS AREA (SF)	PERVIOUS AREA (SF)	DESIGN CAPTURE VOLUME (CF)	STRUCTURAL BMP ID#	BMP CLASSIFICATION	BMP PROVIDED	LATITUDE	LONGITUDE	DESIGN FLOW RATE (CFS)	PROVIDED FLOW RATE (CFS)
1	28652	23244	5408	1336	MWS–1	BIOTREATMENT	MWS–L–8–8–V	33.833	–118.025	0.198	0.231
2	7671	5728	1943	725	BIO–1	INFILTRATION	BIORETENTION	33.831	–118.024	–	–
3	8722	7588	1134	488	BIO–2	INFILTRATION	BIORETENTION	33.832	–118.025	–	–
TOTAL	45045	36560	8485	2549	–	–	–	–	–	–	–

SOURCE CONTROL BMPS	
BMP ID	BMP DESCIRPTION
S1	STORM DRAIN STENCILING AND SIGNAGE → ALL SD GRATED INLETS, CURB CUTS (TYP.)
S3	REFUSE / TRASH COLLECTION AREAS
S4	LANDSCAPE / OUTDOOR PESTICIDE USE
S13	WASH WATER CONTROL FOR FOOD PREPARATION AREAS
N1	EDUCATION FOR PROPERTY OWNERS, TENANTS, AND OCCUPANTS (ENTIRE SITE)
N2	ACTIVITY RESTRICTIONS (ENTIRE SITE)
N3	COMMON AREA LANDSCAPE MANAGEMENT
N4	BMP MAINTENANCE
N5	TITLE 22 CCR COMPLIANCE (ENTIRE SITE)
N10	UNIFORM FIRE CODE IMPLEMENTATION (ENTIRE SITE)
N11	COMMON AREA LITTER CONTROL (ENTIRE SITE)
N12	EMPLOYEE TRAINING (ENTIRE SITE)
N14	COMMON AREA CATCH BASIN INSPECTION
N15	STREET SWEEPING PRIVATE STREETS AND PARKING LOTS



SCALE
1" = 20'
WHEN PRINTED AT FULL SIZE (24"X36")

Kimley»Horn
180 EAST OCEAN BLVD, SUITE 1200
LONG BEACH, CA 90802
(562) 549-2200

PREPARED UNDER THE DIRECT SUPERVISION OF:

AMELIA BELTRAN, R.C.E. NO. 87468 DATE: EXP. 09/30/2027

811 Know what's below. Call before you dig.

GRADI! WQMP EXHIBIT A 90602

REVISIONS					CHECKED: AMELIA BELTRAN
NO.	DATE	BY	DESCRIPTION	APP:	RECOMMENDED:
					APPROVED:
					BENCHMARK: BASED ON NAVD 1988 DATUM, AND IS A SET MAG NAIL AND SHINER LOCATED NEAR THE SOUTHWEST CORNER OF PARCEL 1. ELEVATION = 60.41 FEET

REFERENCES:

GP-

REV. NO.

SHEET 1 OF 1

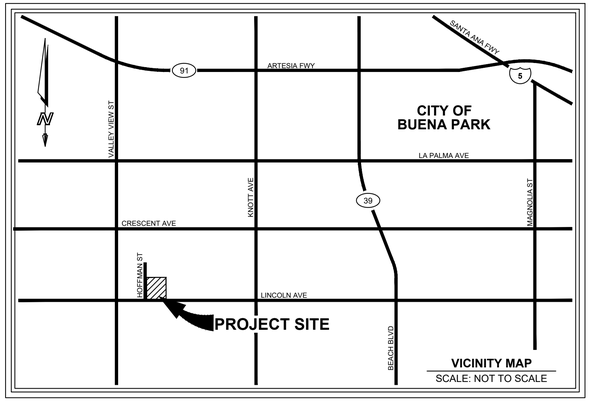
Attachment C: On-Site Improvement Plan

ON-SITE IMPROVEMENT PLANS

FOR

McDONALD'S USA, LLC

6201 LINCOLN AVENUE
BUENA PARK, CA 90602



VICINITY MAP
SCALE: NOT TO SCALE

PROJECT TEAM

DEVELOPER
SCOTT WILKESON
MCDONALDS USA, LLC
110 N. CARPENTER
CHICAGO, IL 60607
(657) 259-2912
SCOTT.WILKESON@US.MCD.COM

SURVEYOR
JOHN F. BRANHAM
ATLAS GEOSPATIAL
2191 EL CAMINO REAL, SUITE 208L
OCEANSIDE, CA 92054
(661) 340-7123

ARCHITECT
ROBERT PREECE
DESIGN UA, INC.
153 EAST CITY PLACE DRIVE
SANTA ANA, CA 92705
(909) 821-3900

CIVIL ENGINEER
AMELIA BELTRAN, PE
KIMLEY-HORN AND ASSOCIATES, INC.
180 EAST OCEAN BOULEVARD, SUITE 1200
LONG BEACH,CA 90802
(562) 549-2142
AMELIA.BELTRAN@KIMLEY-HORN.COM

UTILITY PURVEYORS

WATER
CITY OF BUENA PARK
WATER DIVISION
(714) 562-3721

SEWER
CITY OF BUENA PARK
SEWER SERVICES DIVISION
(714) 562-3655

PHONE
AT&T
(800) 310-2355

STORM
CITY OF BUENA PARK
PUBLIC WORKS
(714) 562-3670

ELECTRIC
SOCAL EDISON
(800) 655-4555

CABLE
CHARTER
(888) 406-7063

BENCHMARK NOTE

THE OFF-SITE BENCHMARK IS BASED ON NAVD 1988 DATUM, BENCHMARK USED IS ORANGE COUNTY PUBLIC WORKS, DESIGNATION 1M-8A-82, DESCRIBED BY OCS 2002 - FOUND 3 3\4" OCS ALUMINUM BENCHMARK DISK STAMPED "1M-8A-82", SET IN THE TOP OF A 6 IN. BY 6 IN. CONCRETE POST. MONUMENT IS LOCATED IN THE NORTHWESTERLY CORNER OF THE INTERSECTION OF HOLDER STREET AND LINCOLN AVENUE, 67 FT. WESTERLY OF THE CENTERLINE OF HOLDER, 45 FT. NORTHERLY OF THE CENTERLINE OF LINCOLN AND 3.5 FT. NORTHERLY OF THE CURB FACE. MONUMENT IS SET LEVEL WITH THE SIDEWALK. ELEVATION= 63.13 FEET.

THE ON-SITE BENCHMARK IS BASED ON NAVD 1988 DATUM, AND IS A SET MAG NAIL AND SHINER LOCATED NEAR THE SOUTHWEST CORNER OF PARCEL 1. ELEVATION=60.41 FEET.

BASIS OF BEARINGS NOTE

BEING THE SOUTH LINE OF SECTION 10 AS SHOWN ON TRACT MAP NO. 16048, HAVING A BEARING OF N89°37'14"W.

LEGAL DESCRIPTION PER TITLE REPORT

SUBJECT PARCEL: APN: 260-022-05, 260-022-06
PARCEL 1, IN THE CITY OF BUENA PARK, COUNTY OF ORANGE, STATE OF CALIFORNIA, AS SHOWN ON A MAP RECORDED IN BOOK 103, PAGES 26 AND 27 OF PARCEL MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

EXCEPTING THEREFROM A ONE-HALF INTEREST IN AND TO ALL OIL AND MINERAL RIGHTS IN SAID LAND, AS RESERVED IN THE DEED RECORDED MAY 14, 1943 IN BOOK 1192, PAGE 12, OF OFFICIAL RECORDS.

GEOTECHNICAL REPORT

THE MCDONALD'S RESTAURANT (4-5199) GEOTECHNICAL ENGINEERING REPORT DATED JUNE 3, 2024 PREPARED BY LEIGHTON CONSULTING, INC.. AND ALL ADDENDA SHALL BE CONSIDERED PART OF THESE CONSTRUCTION DOCUMENTS.

SITE INFORMATION

SITE ADDRESS:	6201 LINCOLN AVENUE BUENA PARK, CA 90602
ZONING DISTRICT:	CS-COMMUNITY SHOPPING (EXISTING)
LAND USE:	COMMERCIAL
EXISTING USE:	VACANT
PROPOSED USE:	DRIVE-THRU RESTAURANT
TOTAL LOTS:	1
PARKING SPACES:	38

ESTIMATED EARTHWORK QUANTITIES

CUT: 1291 CY

FILL: 77 CY

NET: 1214 CY (EXPORT)

NOTE: THE EARTHWORK QUANTITIES ABOVE ARE FOR PERMIT PURPOSES ONLY. THE CONTRACTOR IS NOT AUTHORIZED TO USE THE ESTIMATES HEREIN FOR BIDDING AND CONSTRUCTION PURPOSES WITHOUT THE EXPLICIT WRITTEN PERMISSION OF THE ENGINEER OF RECORD. NO REPRESENTATIONS OF SUCH QUANTITIES OR A BALANCED SITE CONDITION ARE MADE BY THE ENGINEER OF RECORD.

UNLESS EXPLICITLY STATED OTHERWISE HEREIN, THE ABOVE QUANTITIES ARE APPROXIMATE, IN PLACE VOLUMES CALCULATED FROM THE EXISTING GROUND TO THE PROPOSED FINISHED GRADE. EXISTING GROUND IS DEFINED BY THE CONTOURS AND SPOT GRADES ON THE BASE SURVEY. PROPOSED FINISHED GRADE IS DEFINED AS THE FINAL GRADE AS INDICATED ON THE GRADING PLAN(S) AS FINISHED GROUND, FINISHED SURFACE, AND FINISHED FLOOR ELEVATIONS.

UNLESS EXPLICITLY STATED OTHERWISE HEREIN, THE ABOVE GRADING QUANTITIES HAVE NOT BEEN FACTORED TO ACCOUNT FOR CHANGES IN VOLUME DUE TO BULKING, CLEARING AND GRUBBING, SHRINKAGE, SUBSIDENCE, OVER-EXCAVATION AND RE-COMPACTION, AND CONSTRUCTION METHODS. NOR DO THEY ACCOUNT FOR THE THICKNESS OF PAVEMENT SECTIONS, STORMWATER QUALITY MEDIA SECTIONS, UTILITY PIPES, TRENCHING AND BEDDING MATERIALS, BUILDING OR WALL FOOTINGS, BUILDING SLAB THICKNESSES AND UNDERLYING BASE OR SAND LAYERS, REUSE OF PULVERIZED MATERIALS THAT WILL UNDERLIE NEW PAVEMENTS, ETC.

ANY OVEREXCAVATION AND RECOMPACTION DEPTHS AND VOLUMES, SHRINKAGE FACTORS, PAVEMENT SECTIONS, BUILDING PAD SECTIONS, AND BULKING FACTORS ARE BASED ON A SEPARATE GEOTECHNICAL REPORT. ANY BUILDING SLAB THICKNESSES ARE BASED ON THE SEPARATE BUILDING STRUCTURAL ENGINEERING PLANS. ANY UTILITY, STORMWATER MITIGATION, AND FOOTING SPOILS ARE BASED ON ESTIMATES PROVIDED BY THE OWNER OR CONTRACTOR.

LEGEND

- CENTER LINE
- PROPERTY LINE
- RIGHT-OF-WAY LINE / LEASE LINE
- EASEMENT / SETBACK LINE
- APPROXIMATE CIVIL LIMIT OF WORK
- GB — GRADE BREAK LINE
- R — RIDGE LINE
- SS — PROPOSED SANITARY SEWER PIPE
- SD — PROPOSED STORM DRAIN PIPE
- W — PROPOSED DOMESTIC WATER PIPE
- FW — PROPOSED FIRE WATER PIPE
- G — PROPOSED GAS LINE
- E — E — PROPOSED ELECTRICAL CONDUIT
- T — PROPOSED TELECOMMUNICATION CONDUIT
- FLOW LINE
- POINT OF CONNECTION (@ BLDG)
- POINT OF CONNECTION (TO EXISTING)
- PROPOSED SEWER CLEANOUT
- PROPOSED BACKFLOW PREVENTOR
- PROPOSED WATER LINE BEND WITH THRUST BLOCK
- 617.50 TC / 617.00 FS — PROPOSED SPOT GRADE
- (615.50 TC) / (615.00 FS) — EXISTING SPOT GRADE
- 2.2% — PROPOSED FLOW (DIRECTION AND SLOPE)
- PROPOSED LANDSCAPE AREA
- HEAVY DUTY CONCRETE PAVEMENT
- STANDARD DUTY CONCRETE PAVEMENT
- STANDARD DUTY ASPHALT PAVEMENT
- HEAVY DUTY ASPHALT PAVEMENT
- DETECTABLE WARNING (TRUNCATED DOMES)

ABBREVIATIONS

AB	AGGREGATE BASE
AC	ASPHALT
BC	BACK OF CURB
BS	BOTTOM OF STEP
BLDG	BUILDING
BW	BACK OF WALK
CB	CATCH BASIN
CF	CURB FACE
C/L	CENTERLINE
CONC.	CONCRETE
CONST.	CONSTRUCT, CONSTRUCTION
DF	DEEPENED FOOTING
DI	DRAIN INLET
DW	DOMESTIC WATER
E	EAST
EG	EDGE OF GUTTER
ELEC	ELECTRIC
EP	EDGE OF PAVEMENT
FF	FINISHED FLOOR
FG	FINISHED GRADE
FL	FLOW LINE
FS	FINISHED SURFACE
FW	FIRE WATER
G	GAS
GB	GRADE BREAK
HP	HIGH POINT
INV	INVERT
IRR	IRRIGATION WATER
JS	JUNCTION STRUCTURE
LP	LOW POINT
MH	MANHOLE
N	NORTH
PCC	PORTLAND CEMENT CONCRETE
P/L	PROPERTY LINE
PUE	PUBLIC UTILITY EASEMENT
PIV	POST INDICATOR VALVE
PVC	POLYVINYL CHLORIDE
R	RADIUS
RD	ROOF DRAIN
RW	RECLAIMED WATER
R/W	RIGHT-OF-WAY
S	SEWER OR SOUTH
SD	STORM DRAIN
STA	STATION
SS	SANITARY SEWER
SSPWC	STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION
SW	SIDE WALK
T	TELEPHONE
TC	TOP OF CURB
W	WATER OR WEST
XXX.XX	PROPOSED ELEVATION
(XXX.XX)	EXISTING ELEVATION

SWPPP NOTE

WDID: TBD

SITE DISTURBANCE IS GREATER THAN 1-ACRE. CONTRACTOR SHALL OBTAIN AND CONTRACT WITH A QUALIFIED SWPPP PRACTITIONER FOR THE DURATION OF CONSTRUCTION, IN COMPLIANCE WITH THE PROJECT APPROVED SWPPP REPORT, FROM INITIAL SITE DISTURBANCE TO FINAL SITE STABILIZATION. QSP SHALL FILE THE NOTICE OF TERMINATION (NOT) WITH THE STATE OF CALIFORNIA AT THE COMPLETION OF CONSTRUCTION.

ENGINEERS SEAL

REGISTERED PROFESSIONAL ENGINEER AMELIA A. BELTRAN No. 87468 CIVIL STATE OF CALIFORNIA
NOT FOR CONSTRUCTION

Kimley»Horn
180 EAST OCEAN BLVD, SUITE 1200
LONG BEACH, CA 90802
(562) 549-2200

PREPARED UNDER THE DIRECT SUPERVISION OF:
Amelia Beltran
AMELIA BELTRAN, R.C.E. NO. 87468 DATE: 10/17/2025 EXP. 09/30/2027

811 Know what's below. Call before you dig.

GRADING PLAN FOR MCDONALD'S 6201 LINCOLN AVENUE, BUENA PARK, CA 90602
CIVIL COVER SHEET

REVISIONS					CHECKED: AMELIA BELTRAN
NO.	DATE	BY	DESCRIPTION	APP:	RECOMMENDED:
					APPROVED:
					BENCHMARK: BASED ON NAVD 1988 DATUM, AND IS A SET MAG NAIL AND SHINER LOCATED NEAR THE SOUTHWEST CORNER OF PARCEL 1. ELEVATION = 60.41 FEET

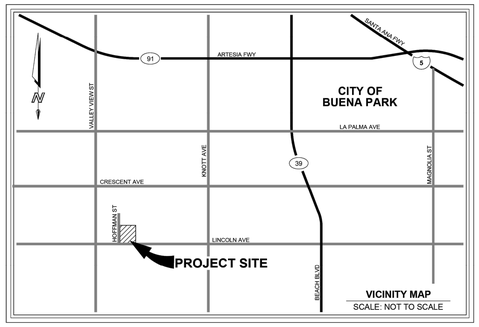
REFERENCES:

GP- REV. NO.

SHEET 1 OF 18

ALTA/NSPS LAND TITLE SURVEY

OF PARCEL 1, IN THE CITY OF BUENA PARK, COUNTY OF ORANGE, STATE OF CALIFORNIA, AS SHOWN ON A MAP RECORDED IN BOOK 103, PAGES 26 AND 27 OF PARCEL MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF ORANGE COUNTY.



VICINITY MAP
SCALE: NOT TO SCALE

LEGAL DESCRIPTION TITLE COMMITMENT ORDER NO: CA2308809C

SUBJECT PARCEL: APN: 260-022-05,260-022-06
PARCEL 1, IN THE CITY OF BUENA PARK, COUNTY OF ORANGE, STATE OF CALIFORNIA, AS SHOWN ON A MAP RECORDED IN BOOK 103, PAGES 26 AND 27 OF PARCEL MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

EXCEPTING THEREFROM A ONE-HALF INTEREST IN AND TO ALL OIL AND MINERAL RIGHTS IN SAID LAND, AS RESERVED IN THE DEED RECORDED MAY 14, 1943 IN BOOK 1192, PAGE 12, OF OFFICIAL RECORDS.

SCHEDULE B - SECTION II EXCEPTIONS

NOTE:
THE INFORMATION SHOWN HEREON IS PER TITLE COMMITMENT ORDER NO: CA2308809C DATED NOVEMBER 27, 2023 BY CHICAGO TITLE INSURANCE COMPANY. NO RESPONSIBILITY OF COMPLETENESS OR ACCURACY OF SAID TITLE COMMITMENT IS ASSUMED BY THIS MAP OR THE SURVEYOR.

CIRCLED INDEX NUMBERS SHOWN BELOW INDICATE SCHEDULE B ITEMS WHICH BOTH AFFECT THE PROPERTY, AND HAVE SUFFICIENT MATHEMATICAL DATA TO BE SHOWN GRAPHICALLY. THESE ITEMS ARE SHOWN ON SHEETS 2 & 3. ITEMS SHOWN WITHOUT CIRCLES ARE DEEMED TO BE "NOT PLOTTABLE" DUE TO THE LACK OF SUFFICIENT MATHEMATICAL DATA, OR THEY DO NOT DIRECTLY AFFECT THE SUBJECT PROPERTY.

A PROPERTY TAXES, INCLUDING ANY PERSONAL PROPERTY TAXES AND ANY ASSESSMENTS COLLECTED WITH TAXES, ARE AS FOLLOWS:

ASSESSOR PARCEL NO.:	260-022-05
FISCAL YEAR:	2023-2024
1ST INSTALLMENT:	$7,612.75 PAID.
2ND INSTALLMENT:	$7,612.75, OPEN
PENALTY AND COST:	$784.27 (DELINQUENT AFTER APRIL 10)
HOMEOWNERS EXEMPTION:	$0.00
CODE AREA:	14-068 **(AFFECTS SUBJECT PARCEL, NOT A SURVEY MATTER)**

B PROPERTY TAXES, INCLUDING ANY PERSONAL PROPERTY TAXES AND ANY ASSESSMENTS COLLECTED WITH TAXES, ARE AS FOLLOWS:

ASSESSOR PARCEL NO.:	260-022-06
FISCAL YEAR:	2023-2024
1ST INSTALLMENT:	$11.71 PAID.
2ND INSTALLMENT:	$11.71, OPEN
PENALTY AND COST:	$24.17 (DELINQUENT AFTER APRIL 10)
HOMEOWNERS EXEMPTION:	$0.00
CODE AREA:	14-068 **(AFFECTS SUBJECT PARCEL, NOT A SURVEY MATTER)**

C THE LIEN OF SUPPLEMENTAL OR ESCAPED ASSESSMENTS OF PROPERTY TAXES, IF ANY, MADE PURSUANT TO THE PROVISIONS OF CHAPTER 3.5 (COMMENCING WITH SECTION 75) OR PART 2, CHAPTER 3, ARTICLES 3 AND 4, RESPECTIVELY, OF THE REVENUE AND TAXATION CODE OF THE STATE OF CALIFORNIA AS A RESULT OF THE TRANSFER OF TITLE TO THE VESTEE NAMED IN SCHEDULE A OR AS A RESULT OF CHANGES IN OWNERSHIP OR NEW CONSTRUCTION OCCURRING PRIOR TO DATE OF POLICY. **(AFFECTS SUBJECT PARCEL, NOT A SURVEY MATTER)**

1 WATER RIGHTS, CLAIMS OR TITLE TO WATER, WHETHER OR NOT DISCLOSED BY THE PUBLIC RECORDS. **(AFFECTS SUBJECT PARCEL, NOT PLOTTABLE FROM AVAILABLE RECORDS)**

2 THE LAND DESCRIBED HEREIN IS INCLUDED WITHIN A PROJECT AREA OF THE REDEVELOPMENT AGENCY SHOWN BELOW, AND THAT PROCEEDINGS FOR THE REDEVELOPMENT OF SAID PROJECT HAVE BEEN INSTITUTED UNDER THE REDEVELOPMENT LAW (SUCH REDEVELOPMENT TO PROCEED ONLY AFTER THE ADOPTION OF THE REDEVELOPMENT PLAN) AS DISCLOSED BY A DOCUMENT.

REDEVELOPMENT AGENCY:	CENTRAL BUSINESS DISTRICT REDEVELOPMENT PROJECT AREA
RECORDING DATE:	APRIL 20, 2007
RECORDING NO:	2007000257354, OFFICIAL RECORDS **(AFFECTS SUBJECT PARCEL, NOT A SURVEY MATTER)**

3 PLEASE BE ADVISED THAT OUR SEARCH DID NOT DISCLOSE ANY OPEN DEEDS OF TRUST OF RECORD. IF YOU SHOULD HAVE KNOWLEDGE OF ANY OUTSTANDING OBLIGATION, PLEASE CONTACT THE TITLE DEPARTMENT IMMEDIATELY FOR FURTHER REVIEW PRIOR TO CLOSING. **(AFFECTS SUBJECT PROPERTY, NOT A SURVEY MATTER)**

4 ANY INVALIDITY OR DEFECT IN THE TITLE OF THE VESTEES IN THE EVENT THAT THE TRUST REFERRED TO HEREIN IS INVALID OR FAILS TO GRANT SUFFICIENT POWERS TO THE TRUSTEE(S) OR IN THE EVENT THERE IS A LACK OF COMPLIANCE WITH THE TERMS AND PROVISIONS OF THE TRUST INSTRUMENT.

IF TITLE IS TO BE INSURED IN THE TRUSTEE(S) OF A TRUST, (OR IF THEIR ACT IS TO BE INSURED), THIS COMPANY WILL REQUIRE A TRUST CERTIFICATION PURSUANT TO CALIFORNIA PROBATE CODE SECTION 18100.5.

THE COMPANY RESERVES THE RIGHT TO ADD ADDITIONAL ITEMS OR MAKE FURTHER REQUIREMENTS AFTER REVIEW OF THE REQUESTED DOCUMENTATION. **(AFFECTS SUBJECT PARCEL, NOT PLOTTABLE FROM AVAILABLE RECORDS)**

5 ANY RIGHTS OF THE PARTIES IN POSSESSION OF A PORTION OF, OR ALL OF, SAID LAND, WHICH RIGHTS ARE NOT DISCLOSED BY THE PUBLIC RECORDS.

THE COMPANY WILL REQUIRE, FOR REVIEW, A FULL AND COMPLETE COPY OF ANY UNRECORDED AGREEMENT, CONTRACT, LICENSE AND/OR LEASE, TOGETHER WITH ALL SUPPLEMENTS, ASSIGNMENTS AND AMENDMENTS THERETO, BEFORE ISSUING ANY POLICY OF TITLE INSURANCE WITHOUT EXCEPTING THIS ITEM FROM COVERAGE.

THE COMPANY RESERVES THE RIGHT TO EXCEPT ADDITIONAL ITEMS AND/OR MAKE ADDITIONAL REQUIREMENTS AFTER REVIEWING SAID DOCUMENTS. **(AFFECTS SUBJECT PARCEL, NOT PLOTTABLE FROM AVAILABLE RECORDS)**

6 ANY EASEMENTS NOT DISCLOSED BY THE PUBLIC RECORDS AS TO MATTERS AFFECTING TITLE TO REAL PROPERTY, WHETHER OR NOT SAID EASEMENTS ARE VISIBLE AND APPARENT. **(AFFECTS SUBJECT PARCEL, NOT PLOTTABLE FROM AVAILABLE RECORDS)**

7 MATTERS WHICH MAY BE DISCLOSED BY AN INSPECTION AND/OR BY A CORRECT ALTA/NSPS LAND TITLE SURVEY OF SAID LAND THAT IS SATISFACTORY TO THE COMPANY, AND/OR BY INQUIRY OF THE PARTIES IN POSSESSION THEREOF. **(AFFECTS SUBJECT PARCEL, NOT PLOTTABLE FROM AVAILABLE RECORDS)**

SURVEY NOTES

1 THIS SURVEY WAS PERFORMED ON MAY 2, 2024.

2 NO UTILITY PLAN/OR REPORTS WERE PROVIDED BY THE CLIENT. UNDERGROUND UTILITIES SHOWN HEREON ARE BASED ON GEOPHYSICAL LOCATING, SURFACE EVIDENCE AND INFORMATION THAT COULD BE ACQUIRED FROM THE PUBLIC WORKS DEPARTMENT OF THE CITY OF BUENA PARK (IF ANY). ATLAS GEOSPATIAL PROVIDES GEOPHYSICAL LOCATING AS A BEST EFFORT SERVICE WITH NO GUARANTEE OF ACCURACY OR COMPLETENESS. THE RESULTS OF GEOPHYSICAL LOCATING MAY BE LIMITED OR AFFECTED BY SITE CONDITIONS, SOIL TYPES AND OTHER BURIED IMPEDIMENTS. DEPTHS PROVIDED HEREON, REPRESENT THE RESULTS OF THIS BEST EFFORT SERVICE. GEOPHYSICAL LOCATING DOES NOT REPLACE THE NEED FOR EXCAVATION OR "POTHOLING" TO ASCERTAIN PRECISE DEPTHS AND LOCATIONS OF BURIED UTILITIES.

3 A DILIGENT INQUIRY WAS MADE WITH THE GAS PROVIDER REGARDING THE DEPTHS OF EXISTING NATURAL GAS LINES. NO RECORDS WERE AVAILABLE REGARDING THIS DEPTH.

4 THERE ARE NO SPRINGS, STREAMS, RIVERS, PONDS OR LAKES BORDERING ON OR RUNNING THROUGH THE PROPERTY.

5 THERE WAS NO EVIDENCE OF CEMETERIES OR FAMILY BURIAL GROUNDS LOCATED ON PROPERTY. HOWEVER, THIS SURVEY WILL NOT OVERWRITE ANY PAST ARCHEOLOGICAL REPORTS, OR SUFFICE IN LIEU OF AN ARCHEOLOGICAL REPORT IN THE FUTURE.

6 THERE WAS NO EVIDENCE OF THE PROPERTY USED AS A SOLID WASTE DUMP, SUMP OR SANITARY LANDFILL, HOWEVER, THIS SURVEY WILL NOT OVERWRITE ANY PAST SOILS REPORTS OR SUFFICE IN LIEU OF AN SOILS REPORT IN THE FUTURE.

7 NO EVIDENCE OF PROPOSED CHANGES IN STREET RIGHT OF WAY LINES WERE OBSERVED OR MADE AVAILABLE TO THE SURVEYOR BY THE CONTROLLING JURISDICTION OR CLIENT. EVIDENCE OF RECENT STREET OR SIDEWALK CONSTRUCTION OR REPAIRS OBSERVED IN THE PROCESS OF CONDUCTING THE FIELDWORK ARE SHOWN HEREON (IF ANY).

8 AT THE TIME OF WHICH THE SURVEY WAS PERFORMED THERE WAS NO EARTH MOVING, CONSTRUCTION, OR BUILDING ADDITIONS IN PROCESS.

9 ENCROACHMENTS ARE REFERENCED UNDER THE "ENCROACHMENT TABLE" ON SHEET 1 AND SHOWN GRAPHICALLY ON SHEET 3.

10 THIS ALTA SURVEY COMPLIES WITH THE REQUIREMENTS SET FORTH IN THE McDONALD'S ORDER FORM AND THE MINIMUM STANDARDS.

11 THERE ARE NO GAPS OR GORES BETWEEN THE PROPERTIES LISTED WITHIN THE TITLE REPORT LISTED HEREON.

12 SUBJECT PROPERTY HAS DIRECT ACCESS FROM LINCOLN AVENUE AND HOFFMAN STREET, LOCATIONS SHOWN ON SHEET 3.

13 THE LANDS SHOWN HEREON ARE THE SAME AS DESCRIBED IN TITLE COMMITMENT ORDER NO: CA2308809C PROVIDED BY CHICAGO TITLE INSURANCE COMPANY.

BASIS OF BEARING

BEING THE SOUTH LINE OF SECTION 10 AS SHOWN ON TRACT MAP NO. 16048, HAVING A BEARING OF N89°37'14"W.

BENCHMARK INFORMATION

THE OFF-SITE BENCHMARK IS BASED ON NAVD 1988 DATUM, BENCHMARK USED IS ORANGE COUNTY PUBLIC WORKS, DESIGNATION 1M-9A-82, DESCRIBED BY OCS 2002 - FOUND 3 3/4" OCS ALUMINUM BENCHMARK DISK STAMPED "1M-9A-82", SET IN THE TOP OF A 6 IN. BY 6 IN. CONCRETE POST. MONUMENT IS LOCATED IN THE NORTHWESTERLY CORNER OF THE INTERSECTION OF HOLDER STREET AND LINCOLN AVENUE, 67 FT. WESTERLY OF THE CENTERLINE OF HOLDER, 45 FT. NORTHERLY OF THE CENTERLINE OF LINCOLN AND 3.5 FT. NORTHERLY OF THE CURB FACE. MONUMENT IS SET LEVEL WITH THE SIDEWALK. ELEVATION= 83.13 FEET.

THE ON-SITE BENCHMARK IS BASED ON NAVD 1988 DATUM, AND IS A SET MAG NAIL AND SHINER LOCATED NEAR THE SOUTHWEST CORNER OF PARCEL 1. ELEVATION= 60.41 FEET.

ZONING & SETBACKS

SUBJECT PARCEL
FRONT: 20 FEET
REAR: 10 FEET
SIDES: 10 FEET / STREET SIDE: 20 FEET
MAX BUILDING HEIGHT: 45 FEET/ 4 STORIES
MAX BUILDING COVERAGE: NONE LISTED
ZONE: CS (COMMUNITY SHOPPING)

CONTAINS 56 STANDARD PARKING STALLS
CONTAINS 2 HANDICAP STALLS
CONTAINS 0 MOTORCYCLE STALLS
58 TOTAL STALLS

NOTES:
1 NO ZONING REPORT OR LETTER WAS PROVIDED BY THE CLIENT TO THE SURVEYOR. ALL SETBACK INFORMATION WAS PROVIDED BY THE CITY OF BUENA PARK PLANNING DEPARTMENT WEBSITE <HTTP://BUENAPARK.COM>. ANY QUESTIONS OR DISCREPANCIES SHOULD BE DIRECTED TO THE CITY AT PHONE NUMBER (714)-562-3500, OR AT THE COUNTER AT 6650 BEACH BLVD, BUENA PARK CA, 90622-5009. IT IS NOT OUR POLICY TO MAKE CALCULATIONS TO DETERMINE REQUIREMENTS FOR THE SITE, BUT ONLY TO REPORT INFORMATION AS DISCOVERED.

2 NO SUBDIVISION OR RE-PLAT IS REQUIRED TO CONVEY THE SURVEYED PROPERTY.

FLOOD DESIGNATION

PER FLOOD INSURANCE RATE MAP NO. 06059C0109J PROJECT SITE LIES IN FLOOD ZONE "X-SHADED".

FLOOD "X-SHADED" DESIGNATION IS DEFINED AS, "0.2% ANNUAL CHANCE FLOOD HAZARD, AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTH LESS THAN ONE FOOT OR WITH DRAINAGE AREAS OF LESS THAN ONE SQUARE MILE." PER THE FEMA WEB SITE, MORE INFORMATION CAN BE GATHERED AT WWW.FEMA.GOV.

ENCROACHMENT TABLE

1 ADJACENT OWNERS WALL ENCROACHES ONTO SUBJECT OWNERS PROPERTY. SEE SHEET 3 FOR DETAILS.

2 SUBJECT OWNERS SIGNAGE ENCROACHES ONTO CITY RIGHT OF WAY. SEE SHEET 3 FOR DETAILS.

3 ADJACENT OWNERS BUILDING COLUMNS ENCROACH ONTO SUBJECT OWNERS PROPERTY. SEE SHEET 3 FOR DETAILS.

SHEET INDEX

OWNERS

KENNETH SKOUMBIS AND JOANNE SKOUMBIS, TRUSTEES OF THE 2018 SKOUMBIS FAMILY TRUST DATED JUNE 28, 2018, AND ANY AMENDMENTS THERETO

SURVEYOR'S CERTIFICATE

TO CHICAGO TITLE INSURANCE COMPANY AND MCDONALD'S USA, LLC, A DELAWARE LIMITED LIABILITY COMPANY; MCDONALD'S REAL ESTATE COMPANY, A DELAWARE CORPORATION; AND MCDONALD'S CORPORATION, A DELAWARE CORPORATION

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 2 THROUGH 5, 6 (A)(B), 7 (A)(B)(C), 8, 9, 10, 13 THROUGH 17 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON MAY 2, 2024.

DATE OF PLAT OR MAP:_____

FOR LEGAL AND TITLE REVIEW ONLY

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Fax: 1-866-357-4917

DATE	REVISIONS	BY

ALTA/NSPS LAND TITLE SURVEY
FOR McDONALD'S 004-5199

6201 LINCOLN AVENUE, CITY OF BUENA PARK, COUNTY OF ORANGE STATE OF CALIFORNIA

PROJECT NUMBER: 004-5199
DWG NAME: 24-020 BUENA PK LINCOLN MCD ALTA
PREPARED BY: CD/AM DATE: 05.20.2024
CHECKED BY: JAA/WWW DATE: 05.20.2024

REVISION 0 SHEET 1 OF 3

ENGINEERS SEAL
REGISTERED PROFESSIONAL ENGINEER AMELIA M. BELTRAN No. 87468 CIVIL STATE OF CALIFORNIA
NOT FOR CONSTRUCTION
Amelia Beltran

Kimley»Horn
180 EAST OCEAN BLVD, SUITE 1200
LONG BEACH, CA 90802
(562) 549-2200

PREPARED UNDER THE DIRECT SUPERVISION OF:
Amelia Beltran DATE: 10/17/2025
AMELIA BELTRAN, R.C.E. NO. 87468 EXP. 09/30/2027

811 Know what's below. Call before you dig.

GRADING PLAN FOR MCDONALD'S 6201 LINCOLN AVENUE, BUENA PARK, CA 90602
EXISTING CONDITIONS

REVISIONS					CHECKED: AMELIA BELTRAN
NO.	DATE	BY	DESCRIPTION	APP:	RECOMMENDED:
					APPROVED:
					BENCHMARK: BASED ON NAVD 1988 DATUM, AND IS A SET MAG NAIL AND SHINER LOCATED NEAR THE SOUTHWEST CORNER OF PARCEL 1. ELEVATION = 60.41 FEET

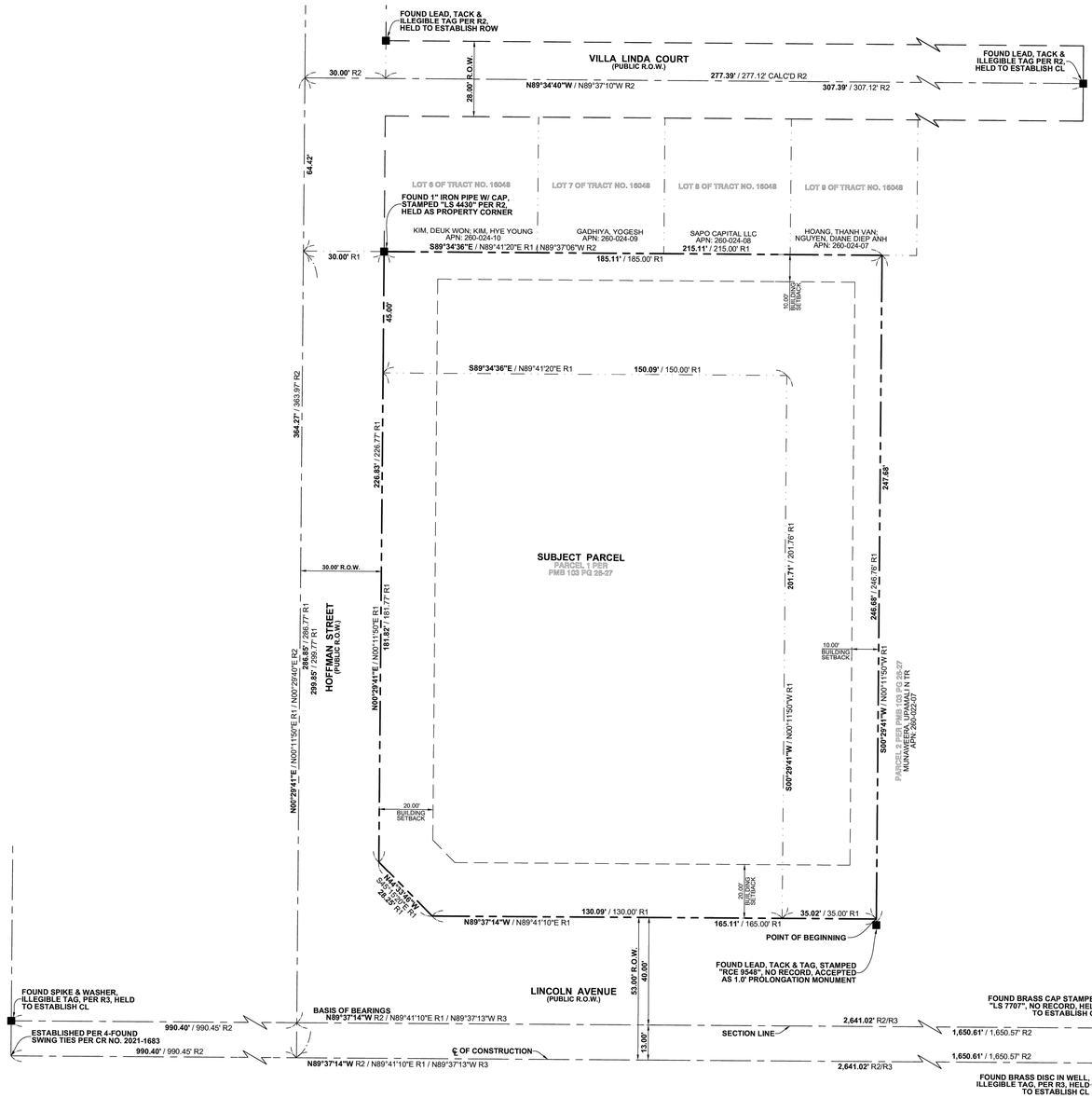
REFERENCES:

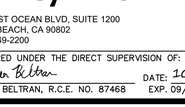
GP- REV. NO.

SHEET 2 OF 18

ALTA/NSPS LAND TITLE SURVEY

OF PARCEL 1, IN THE CITY OF BUENA PARK, COUNTY OF ORANGE, STATE OF CALIFORNIA, AS SHOWN ON A MAP RECORDED IN BOOK 103, PAGES 26 AND 27 OF PARCEL MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF ORANGE COUNTY.





RECORD LEGEND

XX A BEARING OR DIMENSION THAT IS MEASURED OR CALCULATED.

R1 RECORD DATA PER PMB 103 PG 26-27.

R2 RECORD DATA PER TRACT NO. 16048.

R3 RECORD DATA PER TRACT NO. 17629.

PARCEL INFORMATION

SUBJECT PARCEL
BEING PARCEL 1 OF PMB 103 PG 26-27
APN: 260-022-05 AND 260-022-06
SQ. FT. = 45,477.73 / 1.04 ACRES
ZONING: CS (COMMUNITY SHOPPING)

LEGEND

NOTE: ALL SYMBOLS OR LINETYPES SHOWN BELOW MAY NOT BE INCORPORATED ON THIS DRAWING.

- PROPERTY BOUNDARY LINE
- PROPOSED LEASE AREA
- CENTERLINE
- RIGHT OF WAY LINE
- INDETERMINATE BOUNDARY LINE
- EASEMENT LINE
- INDICATES RESTRICTED ACCESS
- ZONING BOUNDARY
- APN ASSESSORS PARCEL NUMBER
- R.O.W. RIGHT OF WAY
- PL PROPERTY LINE
- CL CENTER LINE
- ■ FOUND MONUMENT AS DESCRIBED
- O SET 5/8" I.P. W/ PLASTIC CAP TAG "LS 8645"
- EXISTING BUILDING WITH OVERHANG

SURVEYOR'S METES AND BOUNDS LEGAL DESCRIPTION

NOTE: THE SURVEYORS METES AND BOUNDS DESCRIPTION SHOWN BELOW DESCRIBES THE SAME PROPERTY AS DESCRIBED IN THE TITLE REPORT.

SUBJECT PARCEL:
BEING PARCEL 1, IN THE CITY OF BUENA PARK, COUNTY OF ORANGE, STATE OF CALIFORNIA, AS SHOWN ON A MAP RECORDED IN BOOK 103, PAGES 26 AND 27 OF PARCEL MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF ORANGE COUNTY, AND MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF PARCEL 2 OF SAID PARCEL MAP, ALSO BEING THE NORTH RIGHT OF WAY LINE OF LINCOLN AVENUE, BEING 53.00 FEET IN HALF WIDTH AS SHOWN ON SAID PARCEL MAP; THENCE ALONG SAID RIGHT OF WAY LINE, N89°37'14"W A DISTANCE OF 165.11 FEET; THENCE LEAVING SAID RIGHT OF WAY LINE, N44°37'46"W A DISTANCE OF 28.25 FEET TO THE EAST RIGHT OF WAY LINE OF HOFFMAN STREET, BEING 30.00 FEET IN HALF WIDTH AS SHOWN ON SAID PARCEL MAP; THENCE ALONG SAID EAST RIGHT OF WAY LINE, N00°29'41"E A DISTANCE OF 226.83 FEET TO THE SOUTH LINE OF LOTS 6 THROUGH 9 OF TRACT NO. 16048, RECORDED IN BOOK 816 PAGES 23-24 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF ORANGE COUNTY; THENCE ALONG SAID SOUTH LINE, S89°34'36"E A DISTANCE OF 185.11 FEET TO THE WEST LINE OF AFOREMENTIONED PARCEL 2 OF SAID PARCEL MAP; THENCE ALONG SAID WEST LINE, S00°29'41"W A DISTANCE OF 246.68 FEET TO THE **POINT OF BEGINNING**.

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DATE	REVISIONS	BY

ALTA/NSPS LAND TITLE SURVEY
FOR McDONALD'S 004-5199

6201 LINCOLN AVENUE, CITY OF BUENA PARK, COUNTY OF ORANGE
STATE OF CALIFORNIA

PROJECT NUMBER: 004-5199	
DWG NAME: 24-020 BUENA PK LINCOLN MCD ALTA	
PREPARED BY: CD/AM	DATE: 05.20.2024
CHECKED BY: JAA/WWW	DATE: 05.20.2024
REVISION 0	SHEET 2 OF 3

ENGINEERS SEAL

NOT FOR CONSTRUCTION
REGISTERED PROFESSIONAL ENGINEER
AMELIA A. BELTRAN
No. 87468
CIVIL
STATE OF CALIFORNIA

Kimley»Horn
180 EAST OCEAN BLVD, SUITE 1200
LONG BEACH, CA 90802
(562) 549-2200

PREPARED UNDER THE DIRECT SUPERVISION OF:
Amelia Beltran DATE: 10/17/2025
AMELIA BELTRAN, R.C.E. NO. 87468 EXP: 09/30/2027

811 Know what's below. Call before you dig.

GRADING PLAN FOR MCDONALD'S 6201 LINCOLN AVENUE, BUENA PARK, CA 90602
EXISTING CONDITIONS

REVISIONS NO.	DATE	BY	DESCRIPTION	APP:

CHECKED: AMELIA BELTRAN
RECOMMENDED:
APPROVED:
BENCHMARK: BASED ON NAVD 1988 DATUM, AND IS A SET MAG NAIL AND SHINER LOCATED NEAR THE SOUTHWEST CORNER OF PARCEL 1. ELEVATION = 60.41 FEET

REFERENCES:

GP- REV. NO.

SHEET 3 OF 18

ALTA/NSPS LAND TITLE SURVEY

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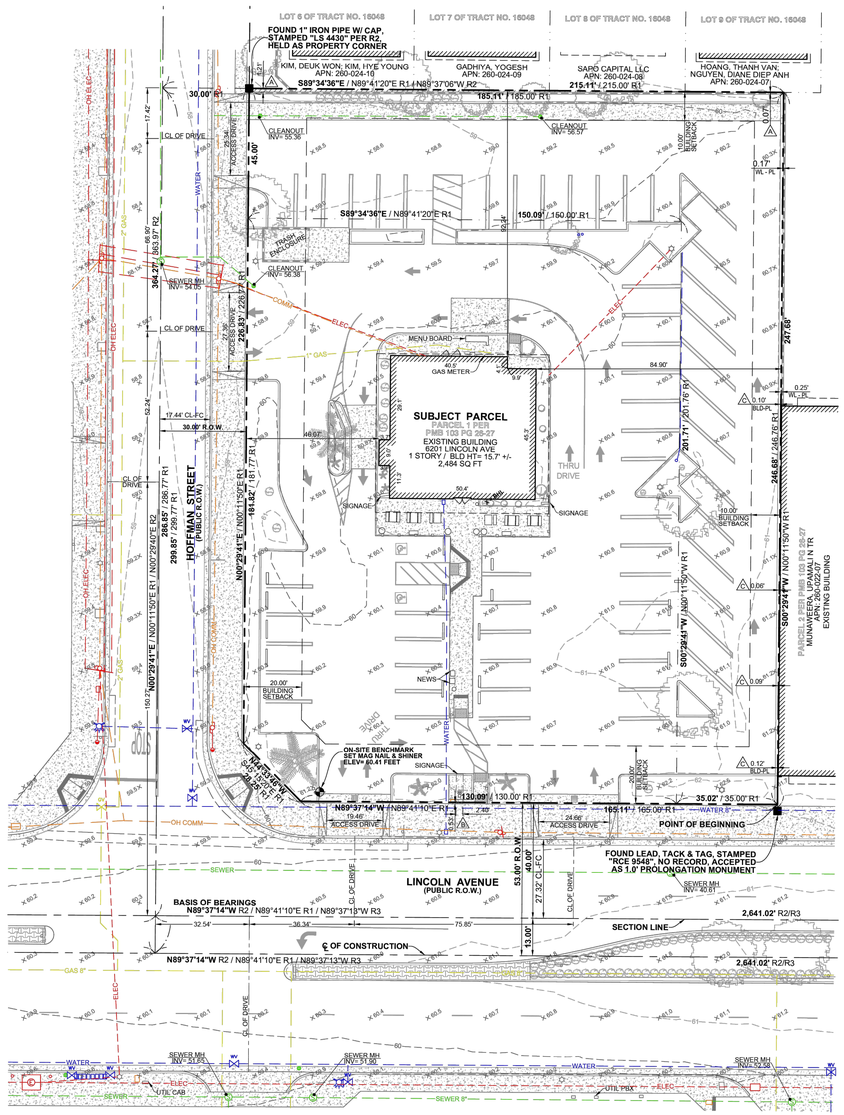

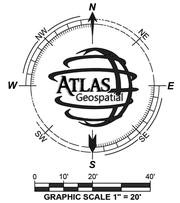

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ZONING: CS (COMMUNITY SHOPPING)

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- PROPERTY BOUNDARY LINE
- PROPOSED LEASE AREA
- CENTERLINE
- RIGHT OF WAY LINE
- INDETERMINATE BOUNDARY LINE
- EASEMENT LINE
- 335 EXISTING CONTOURS
- OH ELEC OVERHEAD ELECTRICAL LINE
- EXISTING CHAIN LINK FENCE
- EXISTING WROUGHT IRON FENCE
- BLOCK WALL
- INDICATES RESTRICTED ACCESS
- ZONING BOUNDARY
- APN ASSESSORS PARCEL NUMBER
- R.O.W. RIGHT OF WAY
- PL PROPERTY LINE
- CL CENTER LINE
- FC FACE OF CURB
- WL WALL
- FN FENCE
- INV INVERT
- ICV IRRIGATION CONTROL VALVE
- PBX PULLBOX
- FDC FIRE DEPARTMENT CONNECTION
- PIV POST INDICATOR VALVE
- BFP BACKFLOW PREVENTOR
- ELEC ELECTRIC
- COMM COMMUNICATION
- X-BHL BUILDING HEIGHT LOCATION
- FIRE HYDRANT
- LIGHT WITH CONCRETE BASE
- WATER VALVE
- GAS VALVE
- STORM DRAIN MANHOLE
- SANITARY SEWER MANHOLE
- SEWER CLEANOUT
- GREASE INTERCEPTOR MANHOLE
- COMMUNICATION MANHOLE
- X 519.06 SPOT ELEVATIONS
- STREET SIGN
- UTILITY POLE
- GUY WIRE
- EXISTING BOLLARD
- TRAFFIC SIGNAL/LIGHTPOLE
- FOUND MONUMENT AS DESCRIBED
  SET 5/8" I.P. W/ PLASTIC CAP TAG "LS 8645"
- EXISTING BUILDING WITH OVERHANG

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PROJECT NUMBER: 004-5199
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PREPARED BY: CD/AM DATE: 05.20.2024
CHECKED BY: JAA/WWW DATE: 05.20.2024

REVISION 0 | SHEET 3 OF 3

Drawing name: K:\ORA_LDEV\mcdonalds\194015056 - buena park (4-5199)\CADD\plansheets\C1.0 - CIVIL COVER SHEET.dwg 4 — EXISTING CONDITIONS Oct 17, 2025 5:00pm by: Jenny.Sheng

ENGINEERS SEAL
AMELIA BELTRAN — NOT FOR CONSTRUCTION — REGISTERED PROFESSIONAL ENGINEER — CIVIL — STATE OF CALIFORNIA

Kimley»Horn
180 EAST OCEAN BLVD, SUITE 1200
LONG BEACH, CA 90802
(562) 549-2200

PREPARED UNDER THE DIRECT SUPERVISION OF:
Amelia Beltran DATE: 10/17/2025
AMELIA BELTRAN, R.C.E. NO. 87468 EXP. 09/30/2027

811 Know what's below. Call before you dig.

GRADING PLAN FOR MCDONALD'S 6201 LINCOLN AVENUE, BUENA PARK, CA 90602
EXISTING CONDITIONS

REVISIONS					CHECKED: AMELIA BELTRAN
NO.	DATE	BY	DESCRIPTION	APP:	RECOMMENDED:
					APPROVED:
					BENCHMARK: BASED ON NAVD 1988 DATUM, AND IS A SET MAG NAIL AND SHINER LOCATED NEAR THE SOUTHWEST CORNER OF PARCEL 1. ELEVATION = 60.41 FEET

REFERENCES:

GP- REV. NO.

SHEET 4 OF 18

GENERAL CONSTRUCTION NOTES

1. ANY DISCREPANCIES ON THE DRAWINGS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER AND ENGINEER BEFORE COMMENCING WORK. NO FIELD CHANGES OR DEVIATIONS FROM DESIGN ARE TO BE MADE WITHOUT PRIOR APPROVAL OF THE OWNER AND NOTIFICATION TO THE ENGINEER.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THAT THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS DO NOT CONFLICT WITH ANY KNOWN EXISTING OR OTHER PROPOSED IMPROVEMENTS. IF ANY CONFLICTS ARE DISCOVERED, THE CONTRACTOR SHALL NOTIFY THE OWNER PRIOR TO INSTALLATION OF ANY PORTION OF THE SITE WORK THAT WOULD BE AFFECTED. FAILURE TO NOTIFY OWNER OF AN IDENTIFIABLE CONFLICT PRIOR TO PROCEEDING WITH INSTALLATION RELIEVES OWNER OF ANY OBLIGATION TO PAY FOR A RELATED CHANGE ORDER.
3. THE CONTRACTOR AND SUBCONTRACTORS SHOULD BE FAMILIAR WITH ALL STATE AND LOCAL REQUIREMENTS RELATED TO SITE CONSTRUCTION ACTIVITIES PRIOR TO COMMENCING WORK. ALL WORK SHALL CONFORM AS APPLICABLE TO THESE GOVERNING STANDARDS AND SPECIFICATIONS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING ALL MATERIAL AND LABOR TO CONSTRUCT THE FACILITY AS SHOWN AND DESCRIBED IN THE CONSTRUCTION DOCUMENTS IN ACCORDANCE WITH THE APPROPRIATE APPROVING AUTHORITIES, SPECIFICATIONS AND REQUIREMENTS. CONTRACTOR SHALL CLEAR AND GRUB ALL AREAS UNLESS OTHERWISE INDICATED, REMOVING TREES, STUMPS, ROOTS, MUCK, EXISTING PAVEMENT AND ALL OTHER DELETERIOUS MATERIAL.
5. EXISTING UTILITIES SHOWN ARE LOCATED ACCORDING TO THE INFORMATION AVAILABLE TO THE ENGINEER AT THE TIME OF THE TOPOGRAPHIC SURVEY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR THE ENGINEER. GUARANTEE IS NOT MADE THAT ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN OR THAT THE LOCATION OF THOSE SHOWN ARE ENTIRELY ACCURATE. FINDING THE ACTUAL LOCATION OF ANY EXISTING UTILITIES IS THE CONTRACTOR'S RESPONSIBILITY AND SHALL BE DONE BEFORE COMMENCING ANY WORK IN THE VICINITY. FURTHERMORE, THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES DUE TO THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. THE OWNER OR ENGINEER WILL ASSUME NO LIABILITY FOR ANY DAMAGES SUSTAINED OR COST INCURRED BECAUSE OF THE OPERATIONS IN THE VICINITY OF EXISTING UTILITIES OR STRUCTURES, NOR FOR TEMPORARY BRACING AND SHORING OF SAME. IF IT IS NECESSARY TO SHORE, BRACE, SWING OR RELOCATE A UTILITY, THE UTILITY COMPANY OR DEPARTMENT AFFECTED SHALL BE CONTACTED AND THEIR PERMISSION OBTAINED REGARDING THE METHOD TO USE FOR SUCH WORK.
6. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE VARIOUS UTILITY COMPANIES WHICH MAY HAVE BURIED OR AERIAL UTILITIES WITHIN OR NEAR THE CONSTRUCTION AREA BEFORE COMMENCING WORK. THE CONTRACTOR SHALL PROVIDE 48 HOURS MINIMUM NOTICE TO ALL UTILITY COMPANIES PRIOR TO BEGINNING CONSTRUCTION. AN APPROXIMATE LIST OF THE UTILITY COMPANIES WHICH THE CONTRACTOR MUST CALL BEFORE COMMENCING WORK IS PROVIDED ON THE COVER SHEET OF THESE CONSTRUCTION PLANS. THIS LIST SERVES AS A GUIDE ONLY AND IS NOT INTENDED TO LIMIT THE UTILITY COMPANIES WHICH THE CONTRACTOR MAY WISH TO NOTIFY.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL REQUIRED CONSTRUCTION PERMITS AND BONDS IF REQUIRED PRIOR TO CONSTRUCTION.
8. THE CONTRACTOR SHALL HAVE AVAILABLE AT THE JOB SITE AT ALL TIMES ONE COPY OF THE CONSTRUCTION DOCUMENTS INCLUDING PLANS, SPECIFICATIONS, GEOTECHNICAL REPORT AND SPECIAL CONDITIONS AND COPIES OF ANY REQUIRED CONSTRUCTION PERMITS.
9. ALL COPIES OF COMPACTION, CONCRETE AND OTHER REQUIRED TEST RESULTS ARE TO BE SENT TO THE OWNER AND DESIGN ENGINEER OF RECORD DIRECTLY FROM THE TESTING AGENCY.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING TO THE ENGINEER A CERTIFIED RECORD SURVEY SIGNED AND SEALED BY A PROFESSIONAL LAND SURVEYOR REGISTERED IN THE STATE OF CALIFORNIA DEPICTING THE ACTUAL FIELD LOCATION OF ALL CONSTRUCTED IMPROVEMENTS THAT ARE REQUIRED BY THE JURISDICTIONAL AGENCIES FOR THE CERTIFICATION PROCESS. ALL SURVEY COSTS WILL BE THE CONTRACTORS RESPONSIBILITY.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DOCUMENTING AND MAINTAINING AS-BUILT INFORMATION WHICH SHALL BE RECORDED AS CONSTRUCTION PROGRESSES OR AT THE COMPLETION OF APPROPRIATE CONSTRUCTION INTERVALS AND SHALL BE RESPONSIBLE FOR PROVIDING AS-BUILT DRAWINGS TO THE OWNER FOR THE PURPOSE OF CERTIFICATION TO JURISDICTIONAL AGENCIES AS REQUIRED. ALL AS-BUILT DATA SHALL BE COLLECTED BY A STATE OF CALIFORNIA PROFESSIONAL LAND SURVEYOR WHOSE SERVICES ARE ENGAGED BY THE CONTRACTOR.
12. ANY WELLS DISCOVERED ON SITE THAT WILL HAVE NO USE MUST BE PLUGGED BY A LICENSED WELL DRILLING CONTRACTOR IN A MANNER APPROVED BY ALL JURISDICTIONAL AGENCIES. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY WELL ABANDONMENT PERMITS REQUIRED.
13. ANY WELL DISCOVERED DURING EARTH MOVING OR EXCAVATION SHALL BE REPORTED TO THE APPROPRIATE JURISDICTIONAL AGENCIES WITHIN 24 HOURS AFTER DISCOVERY IS MADE.
14. ANY EXISTING UTILITY, WHICH IS TO BE EXTENDED, WHICH IS THE CONNECTION POINT FOR NEW UNDERGROUND UTILITIES, OR WHICH NEW FACILITIES CROSS, SHALL BE EXPOSED BY THE CONTRACTOR PRIOR TO PLACEMENT OF THE NEW UTILITIES. COST OF SUCH EXCAVATION AND SUBSEQUENT BACKFILL SHALL BE INCLUDED IN THE PRICES PAID FOR THE VARIOUS ITEMS OF WORK. THE ELEVATIONS AND LOCATIONS OF THE EXISTING FACILITIES WILL BE CHECKED BY THE PUBLIC WORKS INSPECTOR AND THE ENGINEER. IF IN THE OPINION OF THE INSPECTOR A CONFLICT EXISTS, THEN THE ENGINEER SHALL MAKE ANY NEEDED GRADE AND/ OR ALIGNMENT ADJUSTMENTS AND REVISE THE PLANS ACCORDINGLY. ALL GRAVITY FLOW PIPELINES TO BE LAID UPGRADE FROM THE LOWEST POINT STARTING AT THE END OF EXISTING IMPROVEMENTS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST 24 HOURS PRIOR TO BACKFILLING OF ANY PIPE WHICH STUBS TO A FUTURE PHASE OF CONSTRUCTION FOR INVERT VERIFICATION. TOLERANCE SHALL BE IN ACCORDANCE WITH CITY STANDARD SPECIFICATIONS.

DESIGN ENGINEER NOTES

1. THE TERM "DESIGN ENGINEER" USED HEREIN SHALL MEAN THE ENGINEER WHO HAS SIGNED AND SEALED HIS/HER RESPECTIVE PLAN SHEETS AND IS IN RESPONSIBLE CHARGE OF THE ENGINEERING DESIGN ON THOSE SHEETS. THE TERM "CONTRACTOR" USED HEREIN SHALL MEAN ANY GENERAL CONTRACTOR OR SUBCONTRACTOR USING THESE PLANS.
2. THE DESIGN ENGINEER SHALL NOT PROVIDE, OBSERVE, COMMENT ON NOR ENFORCE ANY SAFETY MEASURES OR REGULATIONS. THE CONTRACTOR SHALL DESIGN, IMPLEMENT, AND MAINTAIN ALL SAFETY MEASURES AND SHALL BE SOLELY RESPONSIBLE FOR ALL REQUIRED SAFETY MEASURES, PROCEDURES AND PROGRAMS AND COMPLYING WITH ALL LOCAL, STATE AND FEDERAL SAFETY AND HEALTH STANDARDS, LAWS, AND REGULATIONS. THE CONTRACTOR AGREES THAT SHE/HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOBSITE CONDITIONS AND SAFETY OF ALL PERSONS AND PROPERTY DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.
3. THE DESIGN ENGINEER SHALL HAVE NO RESPONSIBILITY FOR ANY OF THE CONTRACTOR'S MEANS AND METHODS OF CONSTRUCTION, TECHNIQUES, EQUIPMENT CHOICE AND USAGE, SEQUENCE, SCHEDULE, SAFETY PROGRAMS, OR SAFETY PRACTICES, NOR SHALL THE DESIGN ENGINEER HAVE ANY AUTHORITY OR RESPONSIBILITY TO DIRECT OR STOP THE WORK OF ANY CONTRACTOR.
4. ANY CHANGES MADE BY THE CONTRACTOR TO THE CONTRACTUALLY AGREED UPON SCOPE, SCHEDULE AND/OR FEE, WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF THE OWNER, IS THE SOLE RESPONSIBILITY AND LIABILITY OF THE CONTRACTOR. THE DESIGN ENGINEER IS NOT RESPONSIBLE FOR DIRECTING, IMPLICITLY OR EXPLICITLY ANY SUCH CHANGES AND THE CONTRACTOR ASSUMES ALL RISK OF UNDERTAKING ANY SUCH CHANGES.
5. THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD THE DESIGN ENGINEER AND OWNER, THEIR OFFICERS, AGENTS AND EMPLOYEES, HARMLESS FROM ANY AND ALL CLAIMS, DEMANDS, JUDGMENTS, LOSS, DAMAGES, COSTS, EXPENSES, FEES OR LIABILITY WHATSOEVER, REAL OR ALLEGED, IN CONNECTION WITH, IN WHOLE OR IN PART, DIRECTLY OR INDIRECTLY, THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING LIABILITY ARISING FROM THE SOLE OR CONCURRENT NEGLIGENCE OF THE OWNER OR THE DESIGN ENGINEER.
6. IF THERE ARE ANY QUESTIONS REGARDING THESE PLANS, THE CONTRACTOR SHALL ISSUE A RFI IN WRITING FROM THE DESIGN ENGINEER AND THE OWNER, REQUESTING A CLARIFICATION BEFORE PERFORMING ANY RELATED OR IMPACTED WORK. ANY ELECTRONIC FILES ARE PROVIDED ONLY FOR THE CONVENIENCE OF THE RECEIVING PARTY AND ARE INTENDED SOLELY FOR THE EXCLUSIVE USE BY THAT PARTY FOR THE PURPOSES EXPRESSLY AUTHORIZED. IN ACCORDANCE WITH STANDARD INDUSTRY PRACTICE, ONLY PRINTED COPIES OF DOCUMENTS DESIGNATED AS "ISSUED FOR CONSTRUCTION", OR EQUIVALENT DESIGNATION, MAY BE RELIED UPON.
7. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PREPARING ITS BID, IN WHOLE AND IN PART, BASED UPON THE DESIGN SHOWN ON THESE PLANS. THE CONTRACTOR IS NOT AUTHORIZED TO USE ANY QUANTITIES SHOWN ON THESE PLANS WITHOUT THE EXPLICIT WRITTEN PERMISSION OF THE ENGINEER OF RECORD. THE DESIGN ENGINEER MAKES NO WARRANTY OR REPRESENTATION AS TO THE SUITABILITY OF ANY INFORMATION SHOWN HEREON FOR DETERMINING A CONTRACTOR BID.
8. ANYTHING MENTIONED IN THE SPECIFICATIONS, IF ANY, AND NOT SHOWN ON THE DRAWINGS, OR SHOWN ON THE DRAWINGS AND NOT MENTIONED IN THE SPECIFICATIONS, SHALL BE OF LIKE EFFECT AS IF SHOWN OR MENTIONED IN BOTH.
9. THE EXISTENCE, LOCATION, TYPE, CONDITION AND SIZE OF UNDERGROUND UTILITIES, FACILITIES OR STRUCTURES ("FACILITIES") SHOWN ON THESE PLANS WAS OBTAINED FROM A SEARCH OF READILY AVAILABLE RECORDS, OR AS PROVIDED BY OTHERS. NO REPRESENTATION IS MADE AS TO THE ACCURACY OR COMPLETENESS OF SAID INFORMATION. THE CONTRACTOR SHALL CONFIRM SAID INFORMATION BY FIELD MEASUREMENTS, OBSERVATIONS AND WHATEVER MEANS NECESSARY, PRIOR TO CONSTRUCTION. THE CONTRACTOR WILL IMMEDIATELY INFORM THE DESIGN ENGINEER IN WRITING IF ANY DISCREPANCIES OR CONFLICTING INFORMATION IS FOUND. THE CONTRACTOR SHALL PROTECT THE FACILITIES SHOWN HEREON AND ANY OTHERS NOT OF RECORD OR NOT SHOWN ON THESE PLANS, AS NEEDED. ALL DAMAGES THERETO CAUSED BY THE CONTRACTOR SHALL BE REPAIRED TO THE APPROPRIATE SPECIFICATIONS AND STANDARDS AT THE SOLE EXPENSE OF THE CONTRACTOR.
10. THE CONTRACTOR SHALL MAKE EXPLORATORY EXCAVATIONS AND LOCATE EXISTING UNDERGROUND FACILITIES AS NEEDED, SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS TO PLANS IF REVISIONS ARE NECESSARY DUE TO THE ACTUAL LOCATION, SIZE, TYPE, OR CONDITION OF EXISTING FACILITIES DIFFERING FROM WHAT IS SHOWN ON THESE PLANS. THE CONTRACTOR SHALL BE FULLY AND SOLELY RESPONSIBLE FOR ALL DAMAGES DUE TO THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ALL SUCH FACILITIES WHETHER NOTED ON THESE PLANS OR NOT. THE DESIGN ENGINEER ASSUMES NO LIABILITY FOR ANY DAMAGES SUSTAINED OR COST INCURRED BECAUSE OF THE OPERATIONS IN THE VICINITY OF EXISTING FACILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL OF ANY DAMAGE TO THE EXISTING IMPROVEMENTS AND REPLACEMENT TO THE SATISFACTION OF THE OWNER AND/OR AUTHORITY HAVING JURISDICTION AS NEEDED.
11. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES PRIOR TO STARTING WORK ADJACENT TO, ABOVE OR BELOW THEIR FACILITIES AND SHALL COORDINATE ALL WORK WITH UTILITY COMPANY REPRESENTATIVES.
12. THE CONTRACTOR SHALL VERIFY ALL EXISTING AND PROPOSED GRADING ELEMENTS BEFORE THE START OF CONSTRUCTION AND SHALL IMMEDIATELY NOTIFY THE DESIGN ENGINEER OF ANY DISCREPANCIES.
13. UNLESS EXPLICITLY STATED OTHERWISE HEREIN, THE EARTHWORK QUANTITIES SHOWN ON THESE PLANS ARE APPROXIMATE IN PLACE VOLUMES CALCULATED FROM THE EXISTING GROUND TO THE PROPOSED FINISHED GRADE. EXISTING GROUND IS DEFINED BY THE CONTOURS AND SPOT GRADES ON THE BASE SURVEY. PROPOSED FINISHED GRADE IS DEFINED AS THE FINAL GRADE AS INDICATED ON THE GRADING PLAN(S) AS FINISHED GROUND, FINISHED SURFACE, AND FINISHED FLOOR ELEVATIONS. NO REPRESENTATIONS OF SUCH QUANTITIES OR A BALANCED SITE CONDITION ARE MADE BY THE ENGINEER OF RECORD. THE EARTHWORK QUANTITIES SHOWN ON THESE PLANS ARE FOR PERMITTING PURPOSES ONLY. UNLESS EXPLICITLY STATED OTHERWISE HEREIN, THEY HAVE NOT BEEN FACTORED TO ACCOUNT FOR CHANGES IN VOLUME DUE TO BULKING, CLEARING AND GRUBBING, SHRINKAGE, SUBSIDENCE, OVER-EXCAVATION AND RE-COMPACTION, AND CONSTRUCTION METHODS. NOR DO THEY ACCOUNT FOR THE THICKNESS OF PAVEMENT SECTIONS, STORMWATER QUALITY MEDIA SECTIONS, UTILITY PIPES, TRENCHING AND BEDDING MATERIALS, BUILDING OR WALL FOOTINGS, BUILDING SLABS THICKNESSES AND UNDERLYING BASE OR SAND LAYERS, REUSE OF PULVERIZED MATERIALS THAT WILL UNDERLIE PAVEMENTS, ETC. THE CONTRACTOR IS NOT AUTHORIZED TO USE THE ESTIMATES HEREIN FOR BIDDING AND CONSTRUCTION PURPOSES WITHOUT THE EXPLICIT WRITTEN PERMISSION OF THE ENGINEER OF RECORD
14. PROPOSED BUILDING PAD ELEVATIONS, IF SHOWN, ARE BASED ON INFORMATION AVAILABLE AT THE TIME OF PREPARATION OF THESE PLANS. CONTRACTOR SHALL CONFIRM SLAB STRUCTURAL SECTION THICKNESSES AND PAD PREPARATION REQUIREMENTS PRIOR TO GRADING FINISHED PADS.
15. THE CONTRACTOR SHALL THOROUGHLY CHECK COORDINATION OF CIVIL, LANDSCAPE, MEP, ARCHITECTURAL AND ALL OTHER PLANS PRIOR TO COMMENCING CONSTRUCTION. SHOULD DISCREPANCIES OR CONFLICTING INFORMATION BE FOUND ON ANY PLANS, OR IN ANY SPECIFICATIONS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER AND DESIGN ENGINEER IN WRITING BEFORE PROCEEDING WITH THE WORK IN QUESTION.
16. THE PROPOSED BUILDING FOOTPRINT(S) AND OTHER STRUCTURE FOOTPRINTS SHOWN IN THESE PLANS WERE PROVIDED TO THE DESIGN ENGINEER BY THE PROJECT ARCHITECT AT THE TIME OF PREPARATION OF THESE PLANS. THE DESIGN ENGINEER MAKES NO REPRESENTATION AS TO THE ACCURACY OF THESE FOOTPRINTS AND THE CONTRACTOR IS SOLELY RESPONSIBLE FOR CONFIRMING WITH THE RELEVANT DESIGN TEAM PROFESSIONALS, AND USING THE FINAL, CORRECT VERSION OF THE FOOTPRINTS. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR CONFIRMING THE STRUCTURE'S FINAL POSITION ON THE SITE BASED UPON THE FINAL ARCHITECTURAL FOOTPRINT, CIVIL PLANS, SURVEY AND ANY OTHER RELEVANT DOCUMENTS. ANY DIFFERENCES FOUND SHALL BE IMMEDIATELY REPORTED TO THE DESIGN ENGINEER AND OWNER/PROJECT ARCHITECT.
17. THE CONTRACTOR SHALL TAKE ALL NECESSARY STEPS TO PROTECT THE PROJECT PROPERTY FROM ANY EROSION AND SILTATION THAT RESULT FROM CONTRACTOR OPERATIONS, BY APPROPRIATE MEANS, OR BY SPECIFIC MEANS DESCRIBED IN THE PROJECT'S PLANS, SPECIFICATIONS OR STORM WATER POLLUTION PREVENTION REPORT, UNTIL SUCH TIME THAT THE PROJECT IS COMPLETED AND ACCEPTED FOR MAINTENANCE BY WHOMEVER IS TO BE ULTIMATELY RESPONSIBLE FOR MAINTENANCE AND THE AGENCY HAVING JURISDICTION. THE DESIGN ENGINEER SHALL HAVE NO RESPONSIBILITY TO DIRECT THE CONTRACTOR REGARDING THE MEANS AND METHODS OF STORMWATER POLLUTION PREVENTION, SEQUENCE, OR SCHEDULE.
18. ALL SHOP DRAWINGS, RFIS AND ANY OTHER DOCUMENTS THAT REQUIRE DESIGN ENGINEER REVIEW SHALL BE SUBMITTED BY THE CONTRACTOR SUFFICIENTLY IN ADVANCE OF CONSTRUCTION OF THAT ITEM, TO ALLOW ADEQUATE REVIEW, COORDINATION AND RESPONSE. SAID DOCUMENTS ARE NOT A DIRECTION FROM THE DESIGN ENGINEER TO MODIFY THE CONTRACTORS SCOPE, SCHEDULE OR PRICE, AND THE CONTRACTOR WARRANTS NOT TO USE THEM AS SUCH.
19. THE CONTRACTOR SHALL ENSURE APPROPRIATE LICENSED PROFESSIONALS HAVE BEEN RETAINED BY THE CONTRACTOR TO PROVIDE ANY/ALL REQUIRED PROJECT CERTIFICATIONS AS MAY BE REQUIRED BY ANY AUTHORITY HAVING JURISDICTION. THE DESIGN ENGINEER WILL NOT PROVIDE ANY PROJECT CERTIFICATIONS UNLESS SPECIFICALLY RETAINED BY THE OWNER TO PROVIDE LIMITED SERVICES.
20. CONTRACTOR SHALL RETAIN A LICENSED SURVEYOR TO DOCUMENT ALL CHANGES TO THE APPROVED CONSTRUCTION DOCUMENTS DURING CONSTRUCTION. THE LICENSED SURVEYOR SHALL PREPARE A SIGNED AND SEALED "AS-BUILT" DRAWING UPON COMPLETION OF CONSTRUCTION. THE DESIGN ENGINEER IS NOT RESPONSIBLE FOR THE PREPARATION IN WHOLE OR IN PART OF THE "AS-BUILT" DRAWINGS.
21. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY MONUMENTATION AND BENCHMARKS WHICH WILL BE DISTURBED OR DESTROYED BY CONSTRUCTION. SUCH POINTS SHALL BE REFERENCED AND REPLACED WITH APPROPRIATE MONUMENTATION BY A LICENSED LAND SURVEYOR OR REGISTERED CIVIL ENGINEER AUTHORIZED TO PRACTICE LAND SURVEYING. A CORNER RECORD OR RECORD OF SURVEY, AS APPROPRIATE, SHALL BE FILED BY THE LICENSED LAND SURVEYOR OR REGISTERED CIVIL ENGINEER AS REQUIRED BY THE MOST CURRENT VERSION OF THE LAND SURVEYORS ACT.

EROSION CONTROL NOTES

1. THE STORM WATER POLLUTION PREVENTION PLAN ("SWPPP") IS COMPRISED OF THIS EROSION CONTROL PLAN, THE STANDARD DETAILS, THE PLAN NARRATIVE, ATTACHMENTS INCLUDED IN SPECIFICATIONS OF THE SWPPP, PLUS THE PERMIT AND ALL SUBSEQUENT REPORTS AND RELATED DOCUMENTS.
2. ALL CONTRACTORS AND SUBCONTRACTORS INVOLVED WITH STORM WATER POLLUTION PREVENTION SHALL OBTAIN A COPY OF THE STORM WATER POLLUTION PREVENTION PLAN AND THE STATE OF CALIFORNIA NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM GENERAL PERMIT (NPDES PERMIT) AND BECOME FAMILIAR WITH THEIR CONTENTS.
3. THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES AS REQUIRED BY THE SWPPP. ADDITIONAL BEST MANAGEMENT PRACTICES SHALL BE IMPLEMENTED AS DICTATED BY CONDITIONS AT NO ADDITIONAL COST TO THE OWNER THROUGHOUT ALL PHASES OF CONSTRUCTION.
4. BEST MANAGEMENT PRACTICES (BMP'S) AND CONTROLS SHALL CONFORM TO FEDERAL, STATE, OR LOCAL REQUIREMENTS OR MANUAL OF PRACTICE, AS APPLICABLE. THE CONTRACTOR SHALL IMPLEMENT ADDITIONAL CONTROLS AS DIRECTED BY THE PERMITTING AGENCY OR OWNER.
5. EROSION CONTROL PLAN MUST CLEARLY DELINEATE ALL STATE WATERS. PERMITS FOR ANY CONSTRUCTION ACTIVITY IMPACTING STATE WATERS OR REGULATED WETLANDS MUST BE MAINTAINED ON SITE AT ALL TIMES.
6. THE CONTRACTOR SHALL MINIMIZE CLEARING TO THE MAXIMUM EXTENT PRACTICAL OR AS REQUIRED BY THE GENERAL PERMIT.
7. CONTRACTOR SHALL DENOTE ON PLAN THE TEMPORARY PARKING AND STORAGE AREA WHICH SHALL ALSO BE USED AS THE EQUIPMENT MAINTENANCE AND CLEANING AREA, EMPLOYEE PARKING AREA, AND AREA FOR LOCATING PORTABLE FACILITIES, OFFICE TRAILERS, AND TOILET FACILITIES.
8. ALL WASH WATER (CONCRETE TRUCKS, VEHICLE CLEANING, EQUIPMENT CLEANING, ETC.) SHALL BE DETAINED AND PROPERLY TREATED OR DISPOSED.
9. SUFFICIENT OIL AND GREASE ABSORBING MATERIALS AND FLOTATION BOOMS SHALL BE MAINTAINED ON SITE OR READILY AVAILABLE TO CONTAIN AND CLEAN-UP FUEL OR CHEMICAL SPILLS AND LEAKS.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DUST CONTROL ON SITE. THE USE OF MOTOR OILS AND OTHER PETROLEUM BASED OR TOXIC LIQUIDS FOR DUST SUPPRESSION OPERATIONS IS PROHIBITED.
11. RUBBISH, TRASH, GARBAGE, LITTER, OR OTHER SUCH MATERIALS SHALL BE DEPOSITED INTO SEALED CONTAINERS. MATERIALS SHALL BE PREVENTED FROM LEAVING THE PREMISES THROUGH THE ACTION OF WIND OR STORM WATER DISCHARGE INTO DRAINAGE DITCHES OR WATERS OF THE STATE.
12. ALL STORM WATER POLLUTION PREVENTION MEASURES PRESENTED ON THE PLAN, SHALL BE INITIATED AS SOON AS PRACTICABLE.
13. STABILIZATION PRACTICES SHOULD BE INITIATED AS SOON AS PRACTICAL, BUT IN NO CASE MORE THAN 7 DAYS WHERE CONSTRUCTION HAS TEMPORARILY CEASED.
14. DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS PERMANENTLY STOPPED SHALL BE STABILIZED. THESE AREAS SHALL BE STABILIZED NO LATER THAN 7 DAYS AFTER THE LAST CONSTRUCTION ACTIVITY OCCURRED IN THESE AREAS.
15. IF THE ACTION OF VEHICLES TRAVELING OVER THE GRAVEL CONSTRUCTION ENTRANCES IS NOT SUFFICIENT TO REMOVE THE MAJORITY OF DIRT OR MUD, THEN THE TIRES MUST BE WASHED BEFORE THE VEHICLES ENTER A PUBLIC ROAD. IF WASHING IS USED, PROVISIONS MUST BE MADE TO INTERCEPT THE WASH WATER AND TRAP THE SEDIMENT BEFORE IT IS CARRIED OFF THE SITE.
16. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED AS SOON AS POSSIBLE.
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING SEDIMENT IN THE DETENTION POND AND ANY SEDIMENT THAT MAY HAVE COLLECTED IN THE STORM SEWER DRAINAGE SYSTEMS IN CONJUNCTION WITH THE STABILIZATION OF THE SITE.
18. ON-SITE & OFF SITE SOIL STOCKPILE AND BORROW AREAS SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION THROUGH IMPLEMENTATION OF BEST MANAGEMENT PRACTICES. STOCKPILE AND BORROW AREA LOCATIONS SHALL BE NOTED ON THE EROSION CONTROL PLAN AND PERMITTED IN ACCORDANCE WITH GENERAL PERMIT REQUIREMENTS.
19. SLOPES SHALL BE LEFT IN A ROUGHENED CONDITION DURING THE GRADING PHASE TO REDUCE RUNOFF VELOCITIES AND EROSION.
20. DUE TO GRADE CHANGES DURING THE DEVELOPMENT OF THE PROJECT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING THE EROSION CONTROL MEASURES (SILT FENCES, ETC.) TO PREVENT EROSION.
21. ALL CONSTRUCTION SHALL BE STABILIZED AT THE END OF EACH WORKING DAY, THIS INCLUDES BACK FILLING OF TRENCHES FOR UTILITY CONSTRUCTION AND PLACEMENT OF GRAVEL OR BITUMINOUS PAVING FOR ROAD CONSTRUCTION.

DEMOLITION NOTES

1. ALL MATERIAL REMOVED FROM THIS SITE BY THE CONTRACTOR SHALL BE DISPOSED OF BY THE CONTRACTOR IN A LEGAL MANNER.
2. REFER TO THE TOPOGRAPHIC SURVEY FOR ADDITIONAL DETAILS OF EXISTING STRUCTURES, ETC., LOCATED WITHIN THE PROJECT SITE. UNLESS OTHERWISE NOTED, ALL EXISTING BUILDINGS, STRUCTURES, SLABS, CONCRETE, ASPHALT, DEBRIS PILES, SIGNS, AND ALL APPURTENANCES ARE TO BE REMOVED FROM THE SITE BY THE CONTRACTOR AND PROPERLY DISPOSED OF IN A LEGAL MANNER AS PART OF THIS CONTRACT. SOME ITEMS TO BE REMOVED MAY NOT BE DEPICTED ON THE TOPOGRAPHIC SURVEY. REFER TO THE DEMOLITION PLAN FOR THE LIMITS OF ASPHALT REMOVAL (THE EXISTING PARKING LOT IS TO REMAIN). IT IS THE CONTRACTOR'S RESPONSIBILITY TO VISIT THE SITE AND DETERMINE THE FULL EXTENT OF ITEMS TO BE REMOVED. IF ANY ITEMS ARE IN QUESTION, THE CONTRACTOR SHALL CONTACT THE OWNER PRIOR TO REMOVAL OF SAID ITEMS.
3. THE CONTRACTOR SHALL REFER TO THE DEMOLITION PLAN AND LANDSCAPE PLAN FOR DEMOLITION/PRESERVATION OF EXISTING TREES. ALL TREES NOT SPECIFICALLY SHOWN TO BE PRESERVED OR RELOCATED SHALL BE REMOVED AS A PART OF THIS CONTRACT. TREE PROTECTION FENCING SHALL BE INSTALLED AS NECESSARY PRIOR TO ANY DEMOLITION.
4. CONTRACTOR SHALL ADJUST GRADE OF ANY RIMS/COVERS TO THE FINISHED ELEVATIONS OF EXISTING UTILITIES TO REMAIN.

PAVING, GRADING AND DRAINAGE NOTES

1. ALL PAVING, CONSTRUCTION, MATERIALS, AND WORKMANSHIP WITHIN JURISDICTION'S RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH LOCAL OR COUNTY SPECIFICATIONS AND STANDARDS (LATEST EDITION) OR CALTRANS SPECIFICATIONS AND STANDARDS (LATEST EDITION) IF NOT COVERED BY LOCAL OR COUNTY REGULATIONS.
2. ALL UNPAVED AREAS IN EXISTING RIGHTS-OF-WAY DISTURBED BY CONSTRUCTION SHALL BE REGRADED AND REPAIRED TO EXISTING CONDITION OR BETTER.
3. TRAFFIC CONTROL ON ALL CALTRANS, LOCAL AND COUNTY RIGHTS-OF-WAY SHALL MEET THE REQUIREMENTS OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (U.S. DOT/FHA) AND THE REQUIREMENTS OF THE STATE AND ANY LOCAL AGENCY HAVING JURISDICTION. IN THE EVENT THAT THE CONTRACT DOCUMENTS AND THE JURISDICTIONAL AGENCY REQUIREMENTS ARE NOT IN AGREEMENT, THE MOST STRINGENT SHALL GOVERN.
4. THE CONTRACTOR SHALL GRADE THE SITE TO THE ELEVATIONS INDICATED AND SHALL REGRADE WASHOUTS WHERE THEY OCCUR AFTER EVERY RAINFALL UNTIL AN ADEQUATE STABILIZATION OCCURS.
5. ALL OPEN AREAS WITHIN THE PROJECT SITE SHALL BE COVERED WITH ROCK UNLESS INDICATED OTHERWISE ON THE LANDSCAPE PLAN.
6. ALL AREAS INDICATED AS PAVEMENT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE TYPICAL PAVEMENT SECTIONS AS INDICATED ON THE DRAWINGS.
7. WHERE EXISTING PAVEMENT IS INDICATED TO BE REMOVED AND REPLACED, THE CONTRACTOR SHALL SAW CUT A MINIMUM 2" DEEP FOR A SMOOTH AND STRAIGHT JOINT AND REPLACE THE PAVEMENT WITH THE SAME TYPE AND DEPTH OF MATERIAL AS EXISTING OR AS INDICATED.
8. WHERE NEW PAVEMENT MEETS THE EXISTING PAVEMENT, THE CONTRACTOR SHALL SAW CUT THE EXISTING PAVEMENT A MINIMUM 2" DEEP FOR A SMOOTH AND STRAIGHT JOINT AND MATCH THE EXISTING PAVEMENT ELEVATION WITH THE PROPOSED PAVEMENT UNLESS OTHERWISE INDICATED.
9. THE CONTRACTOR SHALL INSTALL FILTER FABRIC OVER ALL DRAINAGE STRUCTURES FOR THE DURATION OF CONSTRUCTION AND UNTIL ACCEPTANCE OF THE PROJECT BY THE OWNER. ALL DRAINAGE STRUCTURES SHALL BE CLEANED OF DEBRIS AS REQUIRED DURING AND AT THE END OF CONSTRUCTION TO PROVIDE POSITIVE DRAINAGE FLOWS.
10. IF DEWATERING IS REQUIRED, THE CONTRACTOR SHALL OBTAIN ANY APPLICABLE REQUIRED PERMITS. THE CONTRACTOR IS TO COORDINATE WITH THE OWNER AND THE DESIGN ENGINEER PRIOR TO ANY EXCAVATION.
11. STRIP TOPSOIL AND ORGANIC MATTER FROM ALL AREAS OF THE SITE AS REQUIRED. IN SOME CASES TOPSOIL MAY BE STOCKPILED ON SITE FOR PLACEMENT WITHIN LANDSCAPED AREAS BUT ONLY AS DIRECTED BY THE OWNER.
12. FIELD DENSITY TESTS SHALL BE TAKEN AT INTERVALS IN ACCORDANCE WITH THE LOCAL JURISDICTIONAL AGENCY.
13. ALL SLOPES AND AREAS DISTURBED BY CONSTRUCTION SHALL BE GRADED AS PER PLANS. THE AREAS SHALL THEN BE STABILIZED BY MEANS AND METHODS APPROVED BY THE LOCAL AGENCY. ANY AREAS DISTURBED FOR ANY REASON PRIOR TO FINAL ACCEPTANCE OF THE JOB SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. ALL EARTHEN AREAS WILL BE COVERED WITH ROCK OR MULCHED AS SHOWN ON THE LANDSCAPING PLAN.
14. ALL CUT OR FILL SLOPES SHALL BE 4 (HORIZONTAL) :1 (VERTICAL) OR FLATTER UNLESS OTHERWISE SHOWN.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL OF DUST AND DIRT RISING AND SCATTERING IN THE AIR DURING CONSTRUCTION AND SHALL PROVIDE WATER SPRINKLING OR OTHER SUITABLE METHODS OF CONTROL. THE CONTRACTOR SHALL COMPLY WITH ALL GOVERNING REGULATIONS PERTAINING TO ENVIRONMENTAL PROTECTION.
16. THE CONTRACTOR SHALL TAKE ALL REQUIRED MEASURES TO CONTROL TURBIDITY, INCLUDING BUT NOT LIMITED TO THE INSTALLATION OF TURBIDITY BARRIERS AT ALL LOCATIONS WHERE THE POSSIBILITY OF TRANSFERRING SUSPENDED SOLIDS INTO THE RECEIVING WATER BODY EXISTS DUE TO THE PROPOSED WORK. TURBIDITY BARRIERS MUST BE MAINTAINED IN EFFECTIVE CONDITION AT ALL LOCATIONS UNTIL CONSTRUCTION IS COMPLETED AND DISTURBED SOIL AREAS ARE STABILIZED. THEREAFTER, THE CONTRACTOR MUST REMOVE THE BARRIERS. AT NO TIME SHALL THERE BE ANY OFF-SITE DISCHARGE WHICH VIOLATES THE WATER QUALITY STANDARDS OF THE GOVERNING CODE.
17. EXPOSED SLOPES SHOULD BE STABILIZED WITHIN 48 HOURS OF COMPLETING FINAL GRADING, AND AT ANY OTHER TIME AS NECESSARY, TO PREVENT EROSION, SEDIMENTATION OR TURBID DISCHARGES.
18. THE CONTRACTOR MUST REVIEW AND MAINTAIN A COPY OF THE REQUIRED PERMITS COMPLETE WITH ALL CONDITIONS, ATTACHMENTS, EXHIBITS, AND PERMIT MODIFICATIONS IN GOOD CONDITION AT THE CONSTRUCTION SITE. THE COMPLETE PERMIT MUST BE AVAILABLE FOR REVIEW UPON REQUEST BY GOVERNING JURISDICTIONS.
19. THE CONTRACTOR SHALL ENSURE THAT ISLAND PLANTING AREAS AND OTHER PLANTING AREAS ARE NOT COMPACTED AND DO NOT CONTAIN ROAD BASE MATERIALS. THE CONTRACTOR SHALL ALSO EXCAVATE AND REMOVE ALL UNDESIRABLE MATERIAL FROM ALL AREAS ON THE SITE TO BE PLANTED AND PROPERLY DISPOSED OF IN A LEGAL MANNER.
20. THE CONTRACTOR SHALL INSTALL ALL UNDERGROUND STORM WATER PIPING PER MANUFACTURER'S RECOMMENDATIONS.

WATER AND SEWER UTILITY NOTES

1. THE CONTRACTOR SHALL CONSTRUCT GRAVITY SEWER LATERALS, CLEANOUTS, GRAVITY SEWER LINES, AND DOMESTIC WATER AND FIRE PROTECTION SYSTEM AS SHOWN ON THESE PLANS. THE CONTRACTOR SHALL FURNISH ALL NECESSARY MATERIALS, EQUIPMENT, MACHINERY, TOOLS, MEANS OF TRANSPORTATION AND LABOR NECESSARY TO COMPLETE THE WORK IN FULL AND COMPLETE ACCORDANCE WITH THE SHOWN, DESCRIBED AND REASONABLY INTENDED REQUIREMENTS OF THE CONTRACT DOCUMENTS AND JURISDICTIONAL AGENCY REQUIREMENTS. IN THE EVENT THAT THE CONTRACT DOCUMENTS AND THE JURISDICTIONAL AGENCY REQUIREMENTS ARE NOT IN AGREEMENT, THE MOST STRINGENT SHALL GOVERN.
2. ALL EXISTING UNDERGROUND UTILITY LOCATIONS SHOWN ARE APPROXIMATE THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS FOR UTILITY LOCATION AND COORDINATION IN ACCORDANCE WITH THE NOTES CONTAINED IN THE GENERAL CONSTRUCTION SECTION OF THIS SHEET. THE CONTRACTOR SHALL ALSO SCOPE THE SEWER LINES ON SITE AND RECORD A DVD.
3. THE CONTRACTOR SHALL RESTORE ALL DISTURBED VEGETATION IN KIND, UNLESS SHOWN OTHERWISE.
4. DEFLECTION OF PIPE JOINTS AND CURVATURE OF PIPE SHALL NOT EXCEED THE MANUFACTURER'S SPECIFICATIONS. SECURELY CLOSE ALL OPEN ENDS OF PIPE AND FITTINGS WITH A WATERTIGHT PLUG WHEN WORK IS NOT IN PROGRESS. THE INTERIOR OF ALL PIPES SHALL BE CLEAN AND JOINT SURFACES WIPED CLEAN AND DRY AFTER THE PIPE HAS BEEN LOWERED INTO THE TRENCH. VALVES SHALL BE PLUMB AND LOCATED ACCORDING TO THE PLANS.
5. ALL PHASES OF INSTALLATION, INCLUDING UNLOADING, TRENCHING, LAYING AND BACK FILLING, SHALL BE DONE IN A FIRST CLASS WORKMANLIKE MANNER. ALL PIPE AND FITTINGS SHALL BE CAREFULLY STORED FOLLOWING MANUFACTURER'S RECOMMENDATIONS. CARE SHALL BE TAKEN TO AVOID DAMAGE TO THE COATING OR LINING IN ANY D.I. PIPE FITTINGS. ANY PIPE OR FITTING WHICH IS DAMAGED OR WHICH HAS FLAWS OR IMPERFECTIONS WHICH, IN THE OPINION OF THE ENGINEER OR OWNER, RENDERS IT UNFIT FOR USE, SHALL NOT BE USED. ANY PIPE NOT SATISFACTORY FOR USE SHALL BE CLEARLY MARKED AND IMMEDIATELY REMOVED FROM THE JOB SITE, AND SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
6. WATER FOR FIRE FIGHTING SHALL BE AVAILABLE FOR USE PRIOR TO COMBUSTIBLES BEING BROUGHT ON SITE.
7. ALL UTILITY AND STORM DRAIN TRENCHES LOCATED UNDER AREAS TO RECEIVE PAVING SHALL BE COMPLETELY BACK FILLED IN ACCORDANCE WITH THE GOVERNING JURISDICTIONAL AGENCY'S SPECIFICATIONS. IN THE EVENT THAT THE CONTRACT DOCUMENTS AND THE JURISDICTIONAL AGENCY REQUIREMENTS ARE NOT IN AGREEMENT, THE MOST STRINGENT SHALL GOVERN.
8. UNDERGROUND LINES SHALL BE SURVEYED BY A STATE OF CALIFORNIA PROFESSIONAL LAND SURVEYOR PRIOR TO BACK FILLING.
9. CONTRACTOR SHALL PERFORM, AT HIS OWN EXPENSE, ANY AND ALL TESTS REQUIRED BY THE SPECIFICATIONS AND/OR ANY AGENCY HAVING JURISDICTION. THESE TESTS MAY INCLUDE, BUT MAY NOT BE LIMITED TO, INFILTRATION AND EXFILTRATION, TELEVISION INSPECTION AND A MANDREL TEST ON GRAVITY SEWER. A COPY OF THE TEST RESULTS SHALL BE PROVIDED TO THE UTILITY PROVIDER, OWNER AND JURISDICTIONAL AGENCY AS REQUIRED.

BUILDING AND SAFETY DIVISION NOTES

1. FILL TO BE COMPACTED TO NOT LESS THAN 90% OF MAXIMUM DENSITY AS DETERMINED BY A.S.T.M. SOIL COMPACTION TEST D1557.
2. FIELD DENSITY WILL BE DETERMINED BY THE SAND-CONE METHOD A.S.T.M. 1556-07 AND/OR NUCLEAR DENSITY GAUGE METHOD A.S.T.M. 2922/3017. IN FINE GRAINED, COHESIVE SOILS, FIELD DENSITY MAY BE DETERMINED BY THE DRIVE-CYLINDER METHOD D2937 A.S.T.M. PROVIDED NOT LESS THAN 20% OF THE REQUIRED DENSITY TESTS, UNIFORMLY DISTRIBUTED, ARE BY THE SAND-CONE METHOD. THE METHOD OF DETERMINING FIELD DENSITY SHALL BE SHOWN IN THE COMPACTION REPORT. OTHER METHODS MAY BE USED IF RECOMMENDED BY THE SOILS ENGINEER AND APPROVED IN ADVANCE BY THE BUILDING OFFICIAL.
3. NOT LESS THAN ONE FIELD DENSITY TEST WILL BE MADE FOR EACH TWO-FOOT VERTICAL LIFT OF FILL NOR LESS THAN ONE SUCH TEST FOR EACH 1,000 CUBIC YARDS OF MATERIAL PLACED UNLESS OTHERWISE RECOMMENDED BY THE SOILS ENGINEER.
4. NO FILL TO BE PLACED UNTIL STRIPPING OF VEGETATION, REMOVAL OF UNSUITABLE SOILS AND INSTALLATION OF SUBDRAINS (IF ANY) HAS BEEN INSPECTED AND APPROVED BY THE SOILS ENGINEER.
5. NO ROCK OR SIMILAR MATERIAL GREATER THAN 8" IN DIAMETER WILL BE PLACED IN THE FILL UNLESS RECOMMENDATIONS FOR SUCH PLACEMENT HAVE BEEN SUBMITTED BY THE SOILS ENGINEER IN ADVANCE AND APPROVED BY THE BUILDING OFFICIAL.
6. FINISH GRADING WILL BE COMPLETED AND APPROVED BEFORE OCCUPANCY OF BUILDINGS.
7. SEE 100 - TITLE SHEET FOR EARTHWORK VOLUMES.
8. FILL SLOPES SHALL NOT BE STEEPER THAN 2.1.
9. PRIOR TO THE ISSUANCE OF BUILDING PERMITS, SUBMIT A SOIL'S ENGINEER REPORT ON THE EXPANSIVE PROPERTIES OF SOIL AS SUCH SOILS ARE DEFINED BY THE BUILDING CODE, SECTION 2904(B) ON ALL BUILDING SITES IN THE PROPOSED SUBDIVISION.
10. DENSITY TESTS WILL BE MADE AT POINTS APPROXIMATELY ONE FOOT BELOW THE FILL SLOPE SURFACE. ONE TEST WILL BE MADE FOR EACH 1,000 SQ. FT. OF SLOPE SURFACE, BUT NOT LESS THAN ONE TEST FOR EACH 10 FT. VERTICAL OF SLOPE HEIGHT UNLESS OTHERWISE RECOMMENDED BY THE SOILS ENGINEER.
11. ALL PADS AT ROUGH GRADING WILL HAVE A MINIMUM SLOPE OF 1 % TOWARDS THE STREET OR DESIGNED DRAINAGE OUTLET.
12. ENGINEER MUST SET GRADE STAKES FOR ALL DRAINAGE DEVICES AND OBTAIN INSPECTION BEFORE POURING.
13. APPROVAL OF THIS PLAN BY THE LOCAL AGENCY DOES NOT CONSTITUTE A REPRESENTATION AS TO THE ACCURACY OF THE LOCATION OR THE EXISTENCE OR NON-EXISTENCE OF ANY UNDERGROUND UTILITY PIPE OR STRUCTURE WITHIN THE LIMITS OF THIS PROJECT. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR THE PROTECTION OF ALL UTILITIES WITHIN THE LIMITS OF THIS PROJECT.
14. FILLS SHALL BE BENCHED IN ACCORDANCE WITH APPROVED GEOTECHNICAL REPORT
15. ALL TRENCH BACKFILLS SHALL BE TESTED AND CERTIFIED BY THE SITE SOILS ENGINEER PER THE GRADING CODE.
16. SUBDRAIN OUTLETS SHALL BE COMPLETED AT THE BEGINNING OF THE SUBDRAIN CONSTRUCTION.
17. THE EXACT LOCATION OF THE SUBDRAINS SHALL BE SURVEYED IN THE FIELD FOR LINE AND GRADE.
18. ALL CUT SLOPES SHALL BE INVESTIGATED BOTH DURING AND AFTER GRADING BY AN ENGINEERING GEOLOGIST TO DETERMINE IF ANY SLOPE STABILITY PROBLEM EXISTS. SHOULD EXCAVATION DISCLOSE ANY GEOLOGICAL HAZARDS OR POTENTIAL GEOLOGICAL HAZARDS, THE ENGINEERING GEOLOGIST SHALL RECOMMEND NECESSARY TREATMENT TO THE BUILDING OFFICIAL FOR APPROVAL.
19. WHERE SUPPORT OR BUTTRESSING OF CUT AND NATURAL SLOPES IS DETERMINED TO BE NECESSARY BY THE ENGINEERING GEOLOGIST AND SOILS ENGINEER, THE SOILS ENGINEER WILL SUBMIT DESIGN, LOCATION AND CALCULATIONS TO THE BUILDING OFFICIAL PRIOR TO CONSTRUCTION. THE ENGINEERING GEOLOGIST AND SOILS ENGINEER WILL INSPECT AND CONTROL THE CONSTRUCTION OF THE BUTTRESSING AND CERTIFY TO THE STABILITY OF THE SLOPE AND ADJACENT STRUCTURES UPON COMPLETION.
20. THE SOILS ENGINEER AND ENGINEERING GEOLOGIST SHALL PERFORM SUFFICIENT INSPECTIONS AND BE AVAILABLE DURING GRADING AND CONSTRUCTION TO PROVIDE CONSULTATION CONCERNING COMPLIANCE WITH THE PLANS, SPECIFICATIONS, AND CODE WITHIN THEIR PURVIEW.
21. THE DESIGN CIVIL ENGINEER SHALL BE AVAILABLE DURING GRADING AND CONSTRUCTION FOR CONSULTATION CONCERNING COMPLIANCE WITH THE PLANS, SPECIFICATIONS, AND CODE WITHIN THIS PURVIEW.
22. DUST SHALL BE CONTROLLED BY WATERING.
23. SANITARY FACILITIES SHALL BE MAINTAINED ON THE SITE.
24. THE LOCATION AND PROTECTION OF ALL UTILITIES ARE THE RESPONSIBILITY OF THE CONTRACTOR.
25. THE CUT PORTION OF CUT/FILL TRANSITION LOTS SHOULD BE OVEREXCAVATED 36" AND BE REPLACED WITH COMPACTED FILL TO A MINIMUM RELATIVE COMPACTION OF 90% UNLESS OTHERWISE RECOMMENED BY THE SOILS ENGINEER.

RECORD DRAWINGS

1. WHERE LOCAL JURISDICTIONS REQUIRE RECORD DRAWINGS, THE CONTRACTOR SHALL PROVIDE TO THE ENGINEER AND OWNER COPIES OF A PAVING, GRADING AND DRAINAGE RECORD DRAWING AND A SEPARATE UTILITY RECORD DRAWING, BOTH PREPARED BY A CALIFORNIA REGISTERED SURVEYOR. THE RECORD DRAWINGS SHALL VERIFY ALL DESIGN INFORMATION INCLUDED ON THE DESIGN PLANS OF THE SAME NAME.

PROJECT CLOSEOUT

CONTRACTOR SHALL PROVIDE THE NECESSARY ITEMS INCLUDING ANY TESTING, REPORTS, OR CERTIFICATION DOCUMENTS REQUIRED BY THE GOVERNING JURISDICTIONS TO PROPERLY CLOSEOUT THE PROJECT BEFORE IT CAN BE DEEMED COMPLETE.

ENGINEERS SEAL

REGISTERED PROFESSIONAL ENGINEER
AMELIA M BELTRAN
CIVIL
STATE OF CALIFORNIA
NOT FOR CONSTRUCTION

Kimley»Horn
180 EAST OCEAN BLVD, SUITE 1200
LONG BEACH, CA 90802
(562) 549-2200

PREPARED UNDER THE DIRECT SUPERVISION OF:
AMELIA BELTRAN, R.C.E. NO. 87468
DATE: 10/17/2025
EXP. 09/30/2027

811
Know what's below.
Call before you dig.

GRADING PLAN FOR MCDONALD'S 6201 LINCOLN AVENUE, BUENA PARK, CA 90602 PRIVATE GENERAL NOTES						REFERENCES:
REVISIONS					CHECKED: AMELIA BELTRAN	GP-
NO.	DATE	BY	DESCRIPTION	APP:	RECOMMENDED:	REV. NO.
					APPROVED:	
					BENCHMARK: BASED ON NAVD 1988 DATUM, AND IS A SET MAG NAIL AND SHINER LOCATED NEAR THE SOUTHWEST CORNER OF PARCEL 1. ELEVATION = 60.41 FEET	SHEET 5 OF 18

DESIGN CRITERIA

1. BUILDING CODE – CALIFORNIA BUILDING CODE 2022
2. REFERENCE STANDARDS
   A. ASCE 7–16: MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES
   B. ACI 318–19: BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE

FOUNDATIONS

1. FOUNDATION DESIGN IS BASED ON THE GEOTECHNICAL REPORT PREPARED BY LEIGHTON A VERDANTAS COMPANY DATED JUNE 3, 2024, WHICH IS INCORPORATED HEREIN BY REFERENCE. ALL FOUNDATION AND SUBGRADE RECOMMENDATIONS SHALL BE FOLLOWED. THE GEOTECHNICAL REPORT IS AVAILABLE TO THE GENERAL CONTRACTOR. THE ARCHITECT AND ENGINEER WILL NOT BE RESPONSIBLE FOR THE ACCURACY OR APPLICABILITY OF SUCH DATA THEREIN.
2. SOIL CRITERIA:

ALLOWABLE BEARING PRESSURE	1500 PSF
ACTIVE EARTH PRESSURE	40 PSF/FT
PASSIVE EARTH PRESSURE	360 PSF/FT
FRICTION COEFFICIENT	0.35
SOIL SUBGRADE MODULUS	100 PSI/IN

3. SUBGRADE FILL AND EXCAVATION REQUIREMENTS SHALL BE AS RECOMMENDED IN THE GEOTECHNICAL REPORT.

STRUCTURAL GENERAL NOTES

1. THIS STRUCTURAL DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, ARE INSTRUMENTS OF SERVICE AND ARE INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY–HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY–HORN AND ASSOCIATES, INC.
2. THE CONTRACTOR SHALL THOROUGHLY CHECK COORDINATION OF CIVIL, LANDSCAPE, ARCHITECTURAL, MEP, AND ALL OTHER PLANS PRIOR TO COMMENCING CONSTRUCTION. SHOULD DISCREPANCIES OR CONFLICTING INFORMATION BE FOUND ON ANY PLANS, OR IN ANY SPECIFICATIONS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER AND DESIGN ENGINEER IN WRITING BEFORE PROCEEDING WITH THE WORK IN QUESTION.
3. THE CONTRACTOR SHALL REFER TO THE ENGINEER FOR INSTRUCTIONS FOR ANY DIMENSION NOT GIVEN ON OR OBTAINABLE FROM THE DRAWINGS. THE CONTRACTOR SHALL NOT USE SCALE TO OBTAIN OR VERIFY ANY DIMENSION SHOWN ON THESE DRAWINGS.
4. ALL EXISTING INFORMATION INDICATED ON THE CONSTRUCTION DRAWINGS HAS BEEN PROVIDED BY OTHERS, AND SHOULD NOT BE ASSUMED TO BE ACCURATE. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING DIMENSIONS AND LOCATIONS OF ANY EXISTING ELEMENTS AS NECESSARY TO COMPLETE THE SCOPE OF WORK.
5. IF THERE ARE ANY QUESTIONS REGARDING THESE PLANS, THE CONTRACTOR SHALL ISSUE A RFI IN WRITING TO THE DESIGN ENGINEER AND THE OWNER, REQUESTING A CLARIFICATION BEFORE PERFORMING ANY RELATED OR IMPACTED WORK. ANY ELECTRONIC FILES ARE PROVIDED ONLY FOR THE CONVENIENCE OF THE RECEIVING PARTY AND ARE INTENDED SOLELY FOR THE EXCLUSIVE USE BY THAT PARTY FOR THE PURPOSES EXPRESSLY AUTHORIZED. IN ACCORDANCE WITH STANDARD INDUSTRY PRACTICE, ONLY PRINTED COPIES OF DOCUMENTS DESIGNATED AS 'ISSUED FOR CONSTRUCTION', OR EQUIVALENT DESIGNATION, MAY BE RELIED UPON.
6. IT IS UNDERSTOOD THAT THE STRUCTURAL ENGINEER OF RECORD MAKES NO WARRANTY, EITHER EXPRESSED OR IMPLIED, AS TO FINDINGS, DESIGNS, RECOMMENDATIONS, SPECIFICATIONS, OPINION, OR PROFESSIONAL ADVICE, EXCEPT THAT THESE INSTRUMENTS OF SERVICE HAVE BEEN PREPARED IN ACCORDANCE WITH THE CURRENT GENERALLY ACCEPTED PROFESSIONAL ENGINEERING PRACTICES.
7. ANYTHING MENTIONED IN THE SPECIFICATIONS, IF ANY, AND NOT SHOWN ON THE DRAWINGS, OR SHOWN ON THE DRAWINGS AND NOT MENTIONED IN THE SPECIFICATIONS, SHALL BE OF LIKE EFFECT AS IF SHOWN OR MENTIONED IN BOTH.
8. ALL NON–STRUCTURAL ELEMENTS INDICATED ON THE STRUCTURAL DRAWINGS HAVE BEEN SHOWN IN GENERAL RELATIONSHIP TO THE STRUCTURAL ELEMENTS. ACCORDINGLY, THEY SHALL NOT BE ASSUMED TO BE ACCURATE AND REFERENCE MUST BE MADE TO THE APPROPRIATE CONSULTANT(S) PLANS AND SPECIFICATIONS.
9. WRITTEN AUTHORIZATION FROM THE STRUCTURAL ENGINEER OF RECORD IS REQUIRED FOR ALL FIELD MODIFICATIONS TO THE STRUCTURAL SYSTEM INCLUDING, BUT NOT LIMITED TO, BEAM AND COLUMN CONNECTIONS, JOIST CONNECTIONS, JOIST BRIDGING, CUTTING OR DRILLING THROUGH ANY STRUCTURAL ELEMENT, ETC.
10. THE GENERAL CONTRACTOR SHALL COORDINATE THE WEIGHT AND SPECIFIC LOCATION OF ALL EQUIPMENT WITH THE STRUCTURAL FRAMING. IF THE EQUIPMENT DEVIATES IN WEIGHT OR LOCATION FROM THOSE INDICATED IN THE DRAWINGS, THE STRUCTURAL ENGINEER'S APPROVAL MUST BE OBTAINED PRIOR TO INSTALLATION OF THE UNITS.
11. ANY CHANGES MADE BY THE CONTRACTOR TO THE CONTRACTUALLY AGREED UPON SCOPE, SCHEDULE AND/OR FEE, WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF THE OWNER, IS THE SOLE RESPONSIBILITY AND LIABILITY OF THE CONTRACTOR. THE DESIGN ENGINEER IS NOT RESPONSIBLE FOR DIRECTING, IMPLICITLY OR EXPLICITLY, ANY SUCH CHANGES AND THE CONTRACTOR ASSUMES ALL RISK OF UNDERTAKING ANY SUCH CHANGES.
12. THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD THE DESIGN ENGINEER AND OWNER, THEIR OFFICERS, AGENTS AND EMPLOYEES, HARMLESS FROM ANY AND ALL CLAIMS, DEMANDS, JUDGMENTS, LOSS, DAMAGES, COSTS, EXPENSES, FEES OR LIABILITY WHATSOEVER, REAL OR ALLEGED, IN CONNECTION WITH, IN WHOLE OR IN PART, DIRECTLY OR INDIRECTLY, THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING LIABILITY ARISING FROM THE SOLE OR CONCURRENT NEGLIGENCE OF THE OWNER OR THE DESIGN ENGINEER.
13. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PREPARING ITS BID, IN WHOLE AND IN PART, BASED UPON THE DESIGN SHOWN ON THESE PLANS. THE CONTRACTOR IS NOT AUTHORIZED TO USE ANY QUANTITIES SHOWN ON THESE PLANS WITHOUT THE EXPLICIT WRITTEN PERMISSION OF THE ENGINEER OF RECORD. THE DESIGN ENGINEER MAKES NO WARRANTY OR REPRESENTATION AS TO THE SUITABILITY OF ANY INFORMATION SHOWN HEREON FOR DETERMINING A CONTRACTOR BID.

CONSTRUCTION SAFETY

1. IT IS UNDERSTOOD THAT THE CONTRACTOR IS SOLELY RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK ON THE PROJECT. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE SAFETY OF THE PERSONS AND PROTECT THEM AGAINST INJURY. LIKEWISE, THE CONTRACTOR SHALL PROTECT ALL PROPERTY AGAINST DAMAGE AND LOSS.
2. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES, REGULATIONS, AND ORDERS OF ANY PUBLIC BODY HAVING JURISDICTION FOR THE SAFETY OF PERSONS AND PROPERTY.
3. THE CONTRACTOR'S DUTIES AND RESPONSIBILITIES FOR THE SAFETY AND PROTECTION OF THE WORK SHALL CONTINUE UNTIL SUCH TIME AS THE WORK IS SATISFACTORILY COMPLETED, AND THE ENGINEER HAS ISSUED A NOTICE TO THAT EFFECT TO THE OWNER AND THE CONTRACTOR.
4. THE STRUCTURE WAS DESIGNED FOR THE IN–SERVICE CONDITIONS ONLY. THE METHODS, PROCEDURES AND SEQUENCES OF CONSTRUCTION ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO MAINTAIN AND ENSURE THE INTEGRITY OF THE STRUCTURE AT ALL STAGES OF CONSTRUCTION.
5. DRAWINGS DO NOT INDICATE TEMPORARY REQUIREMENTS. THE NEED FOR TEMPORARY SHORING AND BRACING, TEMPORARY DEWATERING, TEMPORARY EARTH RETENTION, TEMPORARY WATER CUTOFF OR OTHER TEMPORARY MEASURES MAY BE INDICATED ON DRAWINGS AT SELECTED AREAS AS SUGGESTIONS FOR THE CONTRACTOR'S CONVENIENCE. THE DRAWINGS DO NOT IDENTIFY ALL AREAS OR CONDITIONS REQUIRING TEMPORARY MEASURES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM TEMPORARY MEASURES INDICATED ON THE DRAWINGS, IDENTIFY OTHER AREAS OR CONDITIONS REQUIRING TEMPORARY MEASURES, DETERMINE MOST EFFICIENT TEMPORARY SYSTEMS, AND DESIGN AND CONSTRUCT REQUIRED TEMPORARY SYSTEMS. ALL TEMPORARY SYSTEMS SHALL BE DESIGNED BY A LICENSED ENGINEER IN THE STATE IN WHICH THE PROJECT IS LOCATED.
6. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR MAINTAINING CONSTRUCTION MEANS AND METHODS THAT WILL NOT IMPACT ADJACENT INFRASTRUCTURE.

CAST IN PLACE CONCRETE

1. PROVIDE CONCRETE ATTAINING A MINIMUM COMPRESSIVE STRENGTH AT 28 (f'c') AS FOLLOWS, UNLESS NOTED OTHERWISE:

USE	DESIGN	WEIGHT	MAX AGGREGATE SIZE	MAX W/C	SLUMP	INSPECTION
RETAINING WALLS	3,000 PSI	NORMAL WEIGHT	1"	0.50	4"±1 MAX	NO

2. ALL CONCRETE SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH CBC CHAPTER 19 & ACI–318, LATEST CODE ADOPTED EDITION.
3. ALL REINFORCING SHALL BE DETAILED, FABRICATED & PLACED IN ACCORDANCE WITH CRSI "MANUAL OF STANDARD PRACTICE", LATEST EDITION.
4. ALL CAST IN PLACE CONCRETE AND POST INSTALLED ANCHORS SHALL BE DESIGNED IN ACCORDANCE WITH CHAPTER 17 OF ACI 318 AS MODIFIED BY THE APPLICABLE BUILDING CODE.
5. SPACING OF CONSTRUCTION OR CONTROL JOINTS IN WALLS EXPOSED TO VIEW SHALL NOT EXCEED 30 FEET UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS. CUT HALF OF THE HORIZONTAL REINFORCING AT CONTROL JOINTS.
6. SLEEVES EMBEDDED IN SLABS AND WALLS SHALL BE LOCATED CLEAR BETWEEN REINFORCING BARS AND SHALL MAINTAIN CLEAR SPACING EQUAL TO THE DIAMETER OF THE LARGEST SLEEVE IN ANY DIRECTION. SLEEVE GROUPS THAT DO NOT COMPLY WITH THE ABOVE REQUIREMENTS SHALL BE CONSIDERED AS AN OPENING AND REINFORCED PER NOTE BELOW.
7. UNLESS NOTED OTHERWISE ON THE DRAWINGS: PROVIDE EXTRA REINFORCING ON ALL SIDES OF ALL MISCELLANEOUS WALL AND SLAB OPENINGS EQUAL TO ONE HALF THE INTERRUPTED REINFORCING BARS EACH SIDE BUT NOT LESS THAN 2 – #4 FOR EACH LAYER OF REINFORCEMENT. EXTEND BARS CLASS 'B' LAP LENGTH BUT NOT LESS THAN 2 FEET BEYOND EDGE OF OPENINGS. PROVIDE 2 – #4X4'–0" DIAGONAL BARS AT EACH CORNER FOR EACH LAYER OF REINFORCEMENT.
8. NO DRILLING THROUGH WALLS SHALL BE CARRIED OUT EXCEPT WITH THE SPECIFIC APPROVAL OF THE ENGINEER. SUCH APPROVAL, IF GRANTED, SHALL BE ON A CASE BY CASE BASIS. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING REINFORCEMENT LAYOUT USING NON–DESTRUCTIVE TESTING PRIOR TO DRILLING INTO CAST CONCRETE.
9. DETAILING OF REBAR SHALL BE IN ACCORDANCE WITH THE LATEST REVISION OF THE ACI DETAILING MANUAL, AND CONCRETE REINFORCING INSTITUTE'S LATEST EDITION OF "MANUAL OF STANDARD PRACTICE". ALL SHOP DRAWINGS PERTAINING TO REBAR DETAILS SHALL BE SUBMITTED TO THE ENGINEER FOR THEIR REVIEW. CONCRETE MIX DESIGN FOR ALL CONCRETE WORK IS REQUIRED TO BE SUBMITTED TO THE ENGINEER FOR REVIEW.
10. CONCRETE SUPPLIER SHALL HAVE A QUALITY CONTROL PROCEDURE FOR THE PRODUCTION OF ALL CONCRETE, WHICH MUST BE ACCEPTABLE TO THE ENGINEER AND MEETS CURRENT ACI STANDARDS.
11. CONSTRUCTION JOINTS SHALL BE AS APPROVED BY THE STRUCTURAL ENGINEER.
12. MATERIAL PROPERTIES:

	ASTM	FY, KSI
A. ALL BARS UNLESS NOTED	A615	60
B. TIES & STIRRUP	A615	60
C. WELDED WIRE FABRIC (SMOOTH)	A185	65

14. LAP SPLICES ARE ALL CLASS B TENSION LAP SPLICES, UNO.
15. PROVIDE A 3/4" CHAMFER ON ALL EXPOSED CORNERS OF CONCRETE.
16. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT

TABLE 20.6.1.3.1 – SPECIFIED CONCRETE COVER FOR CAST–IN–PLACE NON–PRESTRESSED CONCRETE MEMBERS

CONCRETE EXPOSURE	MEMBER	REINFORCEMENT	SPECIFIED COVER
CAST AGAINST AND PERMANENTLY IN CONTACT WITH THE GROUND	ALL	ALL	3"
EXPOSED TO WEATHER OR IN CONTACT WITH GROUND	ALL	NO. 6 THRU NO. 18	2"
		NO. 5 BAR, W31 OR D31 WIRE, AND SMALLER	1 1/2"
NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND	SLABS, JOISTS, AND WALLS	NO. 14 THRU NO. 18 BARS	1 1/2"
		NO. 11 BARS AND SMALLER	3/4"
	BEAMS, COLUMNS, PEDESTRALS, AND TENSION TIES	PRIMARY REINFORCEMENT, STIRRUPS, TIES, SPIRALS, AND HOOPS	1 1/2"

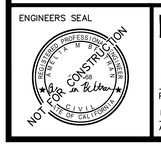
FORMWORK, SHORING, AND RESHORING

1. THE CONTRACTOR SHALL EMPLOY, AT THEIR EXPENSE, A FORMWORK/SHORING ENGINEER REGISTERED IN THE STATE IN WHICH THE PROJECT IS LOCATED TO CONTROL ALL OPERATIONS RELATING TO DESIGN, INSTALLATION AND REMOVAL OF ALL FORMWORK, SHORING AND RESHORING.
2. PRIOR TO PLACEMENT OF CONCRETE, THE FORMWORK/SHORING ENGINEER SHALL INSPECT THE SHORING AFTER THE FIRST POUR TO VERIFY THAT THE SHORING INSTALLATION IS IN CONFORMANCE WITH THE SHORING SHOP DRAWINGS. IF ANY CHANGES ARE MADE TO THE METHOD OF SHORING DURING CONSTRUCTION, THE SHORING ENGINEER MUST INSPECT THE FIRST POUR AREA SUPPORTED BY THE CHANGED SHORING METHOD PRIOR TO PLACEMENT OF CONCRETE. A WRITTEN STATEMENT OF COMPLIANCE SIGNED BY THE SHORING ENGINEER SHALL BE SUBMITTED TO THE OWNER.

SPECIAL INSPECTIONS

1. THIS PROJECT IS EXEMPT FROM SPECIAL INSPECTION PER CBC SECTION 1704.2, EXCEPTION NUMBER 1 (CONSTRUCTION OF A MINOR NATURE)

ENGINEERS SEAL



Kimley»Horn
180 EAST OCEAN BLVD, SUITE 1200
LONG BEACH, CA 90802
(562) 549-2200

PREPARED UNDER THE DIRECT SUPERVISION OF:
AMELIA BELTRAN, R.C.E. NO. 87468 DATE: 10/17/2025 EXP. 09/30/2027

811 Know what's below. Call before you dig.

GRADING PLAN FOR MCDONALD'S 6201 LINCOLN AVENUE, BUENA PARK, CA 90602
PRIVATE GENERAL NOTES

REVISIONS					CHECKED: AMELIA BELTRAN
NO.	DATE	BY	DESCRIPTION	APP:	RECOMMENDED:
					APPROVED:
					BENCHMARK: BASED ON NAVD 1988 DATUM, AND IS A SET MAG NAIL AND SHINER LOCATED NEAR THE SOUTHWEST CORNER OF PARCEL 1. ELEVATION = 60.41 FEET

REFERENCES:

GP- REV. NO.

SHEET 5 OF 18

CITY OF BUENA PARK - PUBLIC WORKS DEPARTMENT

GRADING NOTES

1. All grading shall be done in accordance with the City of Buena Park standards and specifications and the latest City-approved Building Code, Chapter 70, as interpreted by the City Engineer. Whenever the term "Building Official" is used, this shall mean the City Engineer or his authorized representatives.

2. The following permits shall be obtained prior to any construction from the Construction Services Division and applicable fees paid to the Department.

   (a) Grading permit
   (b) Sewer permit for sewer lateral or sewer cleanout. The Public Works Inspector shall verify and field check sewer cleanout location prior to construction.
   (c) Concrete permit for construction of driveway approaches, sidewalks, curb and gutters.
   (d) Paving permit for street pavement construction.
   (e) Water line permit for any water main connection, fire protection line construction and domestic water service.
   (f) Storm drain permit for storm drain connection to an existing City storm drain facility or for new storm drain main line and lateral construction.
   (g) Southern California Edison Company, Pacific Bell Company, Southern California Gas Company and Comcast Cablevision permits for main or lateral facility installations in the public right of way.

3. In the removal and/or construction of off-site improvements in the City right of way, the Public Works Inspector may use his discretion in determining the extent and limit of work to be undertaken in conformance with the City requirements and in accordance with the approved plans, specifications and City standards.

4. On-site water and sewer laterals shall be in accordance with the latest revision of the Uniform Plumbing Code and inspected by Building Division.

5. Masonry block wall and retaining wall calculations and construction shall be reviewed, inspected and approved, and permit issued by the Building Division.

6. All excavations, construction and installations in the public right of way require inspection. Failure to have inspection will result in reopening of the excavation and possible reconstruction.

7. All waste, vegetation, refuse and deleterious materials shall be removed prior to any grading.

8. No water shall be taken from City fire hydrants without approved application from the Construction Services Division and payment of fees and deposits.

9. Dust shall be controlled by watering.

10. Contractor shall notify UNDERGROUND SERVICE ALERT a minimum of 48 hours advance notice (1/800/422-4133) prior to excavation.

11. Contractor is required to call 714/562-3686, at least 48 hours in advance for inspection.

12. No construction or grading shall begin prior to pre-construction meeting with City Public Works Inspector from the Construction Services Division.

13. Developer will submit two (2) copies of approved street light location plans from S.C. Edison to the City prior to issuance of City permit for street lights.

14. Developer/owner shall be responsible for checking and recognizing all easements in the development and adjacent properties. Engineer of Record shall be responsible for indicating existing utility locations and resolving possible conflicts of service connections for the development.

15. Developer/contractor shall submit a traffic control plan for approval prior to any lane closure or work in the City right of way. Plans shall show the proper placing of barricades or delineators for traffic direction and information.

16. Utility trenches within the City right of way shall not be excavated and left opened on Fridays and weekends. Utility trenches shall be properly provided with steel covers and traffic delineators in accordance with City standards and to the satisfaction of the City Engineer.

17. Compaction on native soil shall be a minimum 95%. With aggregate base over native, minimum compaction is 90%.

CITY OF BUENA PARK

Department of Public Works
"Service with Pride"

GENERAL NOTES

1. All work shall be in accordance with the applicable sections of the Standard Specifications for Public Works, Construction (the Green Book), latest edition, and all subsequent supplements, City of Buena Park Standards, contract documents, and the latest revisions thereof.

2. The location and existence of utilities and improvements shown on the plans are approximate and taken from available records. The contractor shall verify the location of existing improvements and shall take all precautions to protect them whether shown or not. The contractor shall notify the **UNDERGROUND SERVICE ALERT (USA) AT 1-800-227-2600** 48 hours before any excavation.

3. Contractor shall notify the City Public Works Inspector assigned to the project at least 48 hours prior to beginning of any work.

4. When joining existing pavement, contractor shall feather a minimum of 10'. New construction joining existing paving shall be done with no dangerous or noticeable joints as determined by the City Engineer.

5. Existing raised pavement markers shall be removed prior to construction and replaced upon the finished surface at the same location.

6. The contractor shall provide and maintain traffic control devices at all times in accordance with the standard specifications and as directed by the City Engineer.

7. The contractor shall remove all grass and weeds in cracks or between gutter and pavement and sterilize soil to prevent further growth.

8. All cracks 1/8" wide or greater shall be filled with joint sealer prior to overlay, as noted in specifications.

9. All projects approved by the City shall be designed and constructed within drainage guidelines established by the City and NPDES requirements.

Rev 10-Jul-08
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CITY OF BUENA PARK - DEPARTMENT OF PUBLIC WORKS

WATER NOTES

1. All water systems as shown on plans will be installed in accordance with City standards under the jurisdiction of and operated by the City of Buena Park. Main lines to be 150# ductile iron pipe conforming to ANSI/AWWA C-150/A 21.50 and design method shall conform to ANSI/AWWA C-150/A 21.50 (wrapped in polyethylene) or approved equal.

2. All water lines within the street right of way shall have a minimum cover of 30" on service laterals and 36" for mains below finished grade.

3. Fire hydrant assemblies shall be per City of Buena Park standard No. 531 which includes a 6" gate valve as shown.

4. Gate valves shall be per City of Buena Park standard No. 518.

5. Thrust blocks shall be installed at angles and bends and shall be per City of Buena Park standard No. 532 and No. 533.

6. Hot taps shall be per City of Buena Park standard No. 524, 525 or 526.

7. All water lines shall be chlorinated at 40 to 50 ppm tested and approved by the Orange County Health Department for bacteriological quality prior to acceptance. Lines failing the test shall be rechlorinated and retested until passing (see Inspector).

8. Water lines shall be pressure tested for leakage per City of Buena Park standard.

9. Fittings shall be cast iron conforming to ASA A2110 or equal or AWWA C 110 and shall be cement mortar lined in accordance with AWWA C 104 or ASA A 21-4 specification. Fittings shall have caulked or rubber ring joints and installed per the pipe manufacturer's specifications and recommendations.

CITY OF BUENA PARK - DEPARTMENT OF PUBLIC WORKS

WATER NOTES (continued)

10. Water meter boxes and vaults shall be per City of Buena Park standard No. 516, with service connection per standard No. 517.

11. All fire hydrants shall be centered in 3' x 3' x 4" concrete slab when not located in sidewalk area.

12. Backfill on water main shall be provided with sand bedding 6" below and 1' above the pipe to the satisfaction of the City Engineer.

13. No construction shall begin prior to pre-construction meeting with City Public Works Inspector from the Construction Services Division.

CITY OF BUENA PARK - DEPARTMENT OF PUBLIC WORKS

SEWER NOTES

1. The sewer system as shown on plans shall be installed in accordance with the specifications and standards of the City of Buena Park.

2. All sewer manholes shall be a minimum of 15" below finished grade and the sewer contractor shall raise manhole frame and covers to finished grade after surfacing is completed.

3. All manholes shall be per City of Buena Park standard No. 505 and 510.

4. All laterals shall be per City of Buena Park standard No. 513.

5. Manholes shall be provided with non-magnetic stainless steel steps as approved by the City Engineer.

6. All sewer lines shall be tested for leakage, balled and mirrored.

7. Sanitary sewers in vicinity of water mains shall conform to City of Buena Park standard No. 535, for encasement requirements.

8. Maintenance on individual laterals will be the responsibility of the property owners. The City has no responsibility for cleaning or repairing these laterals.

9. Sanitary sewer cleanouts shall be per city of Buena Park standard No. 511.

10. No construction shall begin prior to pre-construction meeting with City Public Works Inspector from the Construction Services Division.

CITY OF BUENA PARK - DEPARTMENT OF PUBLIC WORKS

STORM DRAIN NOTES

1. All storm drain systems as shown on the plans shall conform to the City of Buena Park standards and specifications.

2. All work performed shall be covered by a permit issued by the Construction Services Division.

3. Existing improvements removed or damaged due to the proposed construction shall be replaced to the satisfaction of the City Engineer.

4. Reinforced concrete pipe shall conform to Subsection 207-2 of the Standard Specifications.

5. Construction shall conform to Section 306 of the Standard Specifications.

6. The contractor shall notify the City and UNDERGROUND SERVICE ALERT (1-800-422-4133) at least 48 hours prior to the commencement of any work proposed under these plans.

7. It will be the responsibility of the contractor to obtain approved plans prior to the commencement of work proposed under these plans.

8. Reinforced concrete pipe shall conform to the specifications of AASHTO, Designation M-170 and Section 65 of the State of California Standard Specifications.

9. Pipe shall be installed in accordance with LACFCD Case III bedding as shown on standard drawings 2-D177. "W" values shall be as specified on standard drawing 2-D177 for Case III bedding notes (3a), (3b), (3c).

10. No construction shall begin prior to pre-construction meeting with City Public Works Inspector from the Construction Services Division.

ENGINEERS SEAL

REGISTERED PROFESSIONAL ENGINEER AMELIA M. BELTRAN No. 87468 CIVIL STATE OF CALIFORNIA
NOT FOR CONSTRUCTION
Amelia Beltran

Kimley»Horn
180 EAST OCEAN BLVD, SUITE 1200
LONG BEACH, CA 90802
(562) 549-2200

PREPARED UNDER THE DIRECT SUPERVISION OF:
Amelia Beltran DATE: 10/17/2025
AMELIA BELTRAN, R.C.E. NO. 87468 EXP. 09/30/2027

811 Know what's below. Call before you dig.

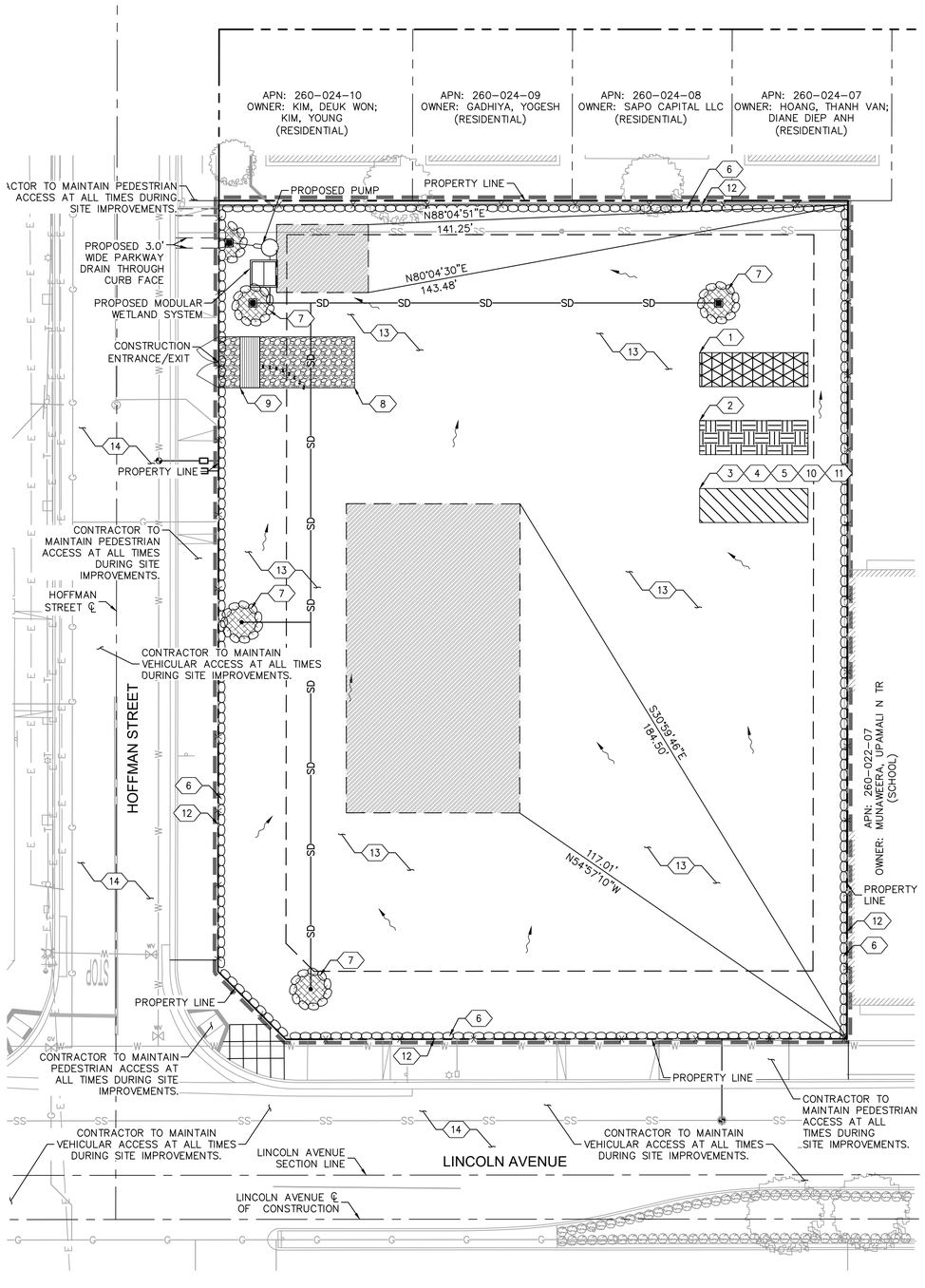
GRADING PLAN FOR MCDONALD'S 6201 LINCOLN AVENUE, BUENA PARK, CA 90602
PERMIT GENERAL NOTES

REVISIONS					CHECKED: AMELIA BELTRAN
NO.	DATE	BY	DESCRIPTION	APP:	RECOMMENDED:
					APPROVED:
					BENCHMARK: BASED ON NAVD 1988 DATUM, AND IS A SET MAG NAIL AND SHINER LOCATED NEAR THE SOUTHWEST CORNER OF PARCEL 1. ELEVATION = 60.41 FEET

REFERENCES:

GP- REV. NO.

SHEET 7 OF 18



LEGEND

- CENTER LINE
- PROPERTY LINE
- RIGHT–OF–WAY LINE
- EASEMENT / SETBACK LINE
- APPROXIMATE CIVIL LIMIT OF WORK LINE
- FILTEXX SILTSOXX OR APPROVED EQUAL
- CONSTRUCTION FENCE WITH GREEN SCREEN
- PROPOSED STORM DRAIN LINES
- EXISTING STORM DRAIN LINES
- PROPOSED STORM DRAIN INLET
- INLET PROTECTION
- CONSTRUCTION ENTRANCE
- STOCKPILE AREA
- SANITARY AREA, TRASH STORAGE, HAZARDOUS MATERIAL, CONCRETE MANAGEMENT, VEHICLE MAINTENANCE AND EQUIPMENT STORAGE AREA
- MATERIAL STORAGE AND DELIVERY
- DIRECTION OF FLOW
- LIMITS OF EARTHWORK PREPARATION FOR PROPOSED BUILDING AND SITE WALLS (RECOMMENDED 3 FOOT LATERAL DISTANCE BEYOND THE PERIMETER OF PROPOSED BUILDING AND SITE WALLS HAS BEEN INCORPORATED). REFER TO EARTHWORK SECTION OF GEOTECHNICAL REPORT FOR MORE INFORMATION

GENERAL EROSION CONTROL NOTES

1. ERODED SEDIMENTS AND OTHER POLLUTANTS MUST BE RETAINED ON SITE AND MAY NOT BE TRANSPORTED FROM THE SITE VIA SHEET FLOW, SWALES, AREA DRAINS, NATURAL DRAINAGE COURSES OR WIND.
2. STOCKPILES OF EARTH AND OTHER CONSTRUCTION RELATED MATERIALS MUST BE PROTECTED FROM BEING TRANSPORTED FROM THE SITE BY THE FORCES OF WIND OR WATER.
3. FUELS, OILS, SOLVENTS, AND OTHER TOXIC MATERIALS MUST BE STORED IN ACCORDANCE WITH THEIR LISTING AND MUST NOT CONTAMINATE THE SOIL AND SURFACE WATERS. ALL APPROVED STORAGE CONTAINERS ARE TO BE PROTECTED FROM THE WEATHER. SPILLS MUST BE CLEANED UP IMMEDIATELY AND DISPOSED OF IN A PROPER MANNER. SPILLS MAY NOT BE WASHED INTO THE DRAINAGE SYSTEM.
4. EXCESS OR WASTE CONCRETE MAY NOT BE WASHED INTO THE PUBLIC WAY OR ANY OTHER DRAINAGE SYSTEM. PROVISIONS SHALL BE MADE TO RETAIN CONCRETE WASTES ON SITE UNTIL THEY CAN BE DISPOSED OF AS SOLID WASTE.
5. TRASH AND CONSTRUCTION RELATED SOLID WASTES MUST BE DEPOSITED INTO A COVERED RECEPTACLE TO PREVENT CONTAMINATION OF RAINWATER AND DISPERSAL BY WIND.
6. SEDIMENTS AND OTHER MATERIALS MAY NOT BE TRACKED FROM THE SITE BY VEHICLE TRAFFIC. THE CONSTRUCTION ENTRANCE ROADWAYS MUST BE STABILIZED SO AS TO INHIBIT SEDIMENTS FROM BEING DEPOSITED INTO THE PUBLIC WAY. ACCIDENTAL DEPOSITIONS MUST BE SWEPT UP IMMEDIATELY AND MAY NOT BE WASHED DOWN BY RAIN OR ANY OTHER MEANS.
7. ANY SLOPES WITH DISTURBED SOILS OR DENUDED OF VEGETATION MUST BE STABILIZED SO AS TO INHIBIT EROSION BY WIND AND WATER.
8. STORM WATER POLLUTION CONTROL REQUIREMENTS MUST BE INTEGRATED ONTO THE EROSION CONTROL PLANS FOR ANY CONSTRUCTION BETWEEN OCTOBER 1 AND APRIL 15. THE FOLLOWING NOTES AND BMP'S AS OUTLINED IN, BUT NOT LIMITED TO, THE BEST MANAGEMENT PRACTICE HANDBOOK, CALIFORNIA STORM WATER QUALITY TASK FORCE. SACRAMENTO, CALIFORNIA 1993, OR THE LATEST REVISED EDITION MAY APPLY DURING THE CONSTRUCTION OF PROJECT (ADDITIONAL MEASURES MAY BE REQUIRED IF DEEMED APPROPRIATE BY CITY INSPECTIONS).
9. TEMPORARY EROSION CONTROL DEVICES SHOWN ON THE PLAN WHICH INTERFERE WITH THE WORK SHALL BE RELOCATED OR MODIFIED AS AND WHEN THE CONTRACTOR AND/OR THE INSPECTOR SO DIRECTS AS THE WORK PROGRESSES.
10. ALL STANDARDS REFERENCED FROM 2018 CASQA CONSTRUCTION BMP BOOK.

MAINTENANCE NOTES (CONT'D)

3. THE CONSTRUCTION ENTRANCES SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS–OF–WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE CONSTRUCTION ENTRANCES AS CONDITIONS DEMAND.

4. THE TEMPORARY PARKING AND STORAGE AREA SHALL BE KEPT IN GOOD CONDITION (SUITABLE FOR PARKING AND STORAGE). THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE TEMPORARY PARKING AS CONDITIONS DEMAND.

5. ALL MAINTENANCE OPERATIONS SHALL BE DONE IN A TIMELY MANNER.

EROSION CONTROL NOTES

1. WM–1, MATERIAL DELIVERY AND STORAGE.
2. WM–3, STOCKPILE MANAGEMENT, CONTRACTOR TO SET UP STOCKPILE AREA.
3. WM–5, SANITARY AREA.
4. WM–6, HAZARDOUS WASTE MANAGEMENT.
5. WM–8, CONCRETE WASTE MANAGEMENT.
6. SE–5, INSTALL FILTREXX SILTSOXX OR APPROVED EQUAL. REFER TO DETAIL 3, SHEET 9 FOR MORE INFORMATION.
7. SE–10, STORM DRAIN INLET PROTECTION. INSTALL PIG SEDIMENT DRAIN INLET FILTER AT ALL DROP INLETS AND ERTEC CURB INLET GUARD AT CURB INLETS OR APPROVED EQUAL.
8. TC–1, STABILIZED CONSTRUCTION ENTRANCE/EXIT; REFER TO DETAIL 1, SHEET 9.
9. TC–3, ENTRANCE/OUTLET TIRE WASH; REFER TO DETAIL 2, SHEET 9.
10. NS–10, VEHICLE AND EQUIPMENT MAINTENANCE.
11. SD–32, TRASH STORAGE AREA.
12. CONSTRUCTION FENCE WITH GREEN SCREEN
13. WE–1, WIND EROSION CONTROL
14. SE–7, VACUUM SWEEPING OF ADJACENT STREETS.

SEQUENCE OF CONSTRUCTION

UPON IMPLEMENTATION AND INSTALLATION OF THE FOLLOWING AREAS: TRAILER, PARKING, LAYDOWN, PORTA–POTTY, WHEEL WASH, CONCRETE WASHOUT, FUEL AND MATERIAL STORAGE CONTAINERS, SOLID WASTE CONTAINERS, ETC., IMMEDIATELY DENOTE THEM ON THE SITE MAPS AND NOTE ANY CHANGES IN LOCATION AS THEY OCCUR THROUGHOUT THE CONSTRUCTION PROCESS.

PHASE 1:
1. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE (1) AND CHAIN LINK FENCE WITH GREEN SCREEN AND THEN FILTREXX SILTSOXX OR APPROVED EQUAL (OR GRAVEL BAGS) WHERE SHOWN ON PLAN.
2. INSTALL INLET PROTECTION AT EXISTING INLET(S).
3. PREPARE CLEARING AND GRUBBING OF THE SITE, IF APPLICABLE.

PHASE 2:
4. PERFORM MASS GRADING. ROUGH GRADE TO ESTABLISH PROPOSED DRAINAGE PATTERNS.
5. START CONSTRUCTION OF THE BUILDING PAD AND STRUCTURES.
6. TEMPORARILY SEED WITH PURE LIVE SEED, THROUGHOUT CONSTRUCTION, DISTURBED AREAS THAT WILL BE INACTIVE FOR 7 DAYS OR MORE OR AS REQUIRED BY GENERIC PERMIT.

SEQUENCE OF CONSTRUCTION GENERAL NOTE:
THE SEQUENCE OF CONSTRUCTION SHOWN ABOVE IS A GENERAL OVERVIEW AND IS INTENDED TO CONVEY THE GENERAL CONCEPTS OF THE EROSION CONTROL DESIGN AND SHOULD NOT BE RELIED UPON FOR CONSTRUCTION PURPOSES. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DETAILED PHASING AND CONSTRUCTION SEQUENCING NECESSARY TO CONSTRUCT THE PROPOSED IMPROVEMENTS INCLUDED IN THESE PLANS. THE CONTRACTOR SHALL NOTIFY ENGINEER IN WRITING IMMEDIATELY, PRIOR TO AND/OR DURING CONSTRUCTION IF ANY ADDITIONAL INFORMATION ON THE CONSTRUCTION SEQUENCE IS NECESSARY. CONTRACTOR IS SOLELY RESPONSIBLE FOR COMPLYING WITH THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION AND ALL OTHER APPLICABLE LAWS.

MAINTENANCE NOTES

ALL MEASURES STATED ON THE EROSION AND SEDIMENT CONTROL PLAN, AND IN THE STORM WATER POLLUTION PREVENTION PLAN, SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION UNTIL NO LONGER REQUIRED FOR A COMPLETED PHASE OF WORK OR FINAL STABILIZATION OF THE SITE. ALL EROSION AND SEDIMENTATION CONTROL MEASURES MAY BE CHECKED BY A QUALIFIED PERSON ON A SCHEDULE THAT MEETS OR EXCEEDS THE GOVERNING REQUIREMENTS, AND CLEANED AND REPAIRED IN ACCORDANCE WITH THE FOLLOWING:

1. INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING, OR DETERIORATION.
2. FILTREXX SILTSOXXS OR APPROVED EQUAL SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED. SEDIMENT SHALL BE REMOVED FROM THE FILTREXX SILTSOXXS OR APPROVED EQUAL WHEN IT REACHES ONE–HALF THE HEIGHT OF THE FILTREXX SILTSOXX OR APPROVED EQUAL.

BMP NOTES

THE FOLLOWING BMPS AS OUTLINED IN, BUT NOT LIMITED TO, THE CALIFORNIA STORMWATER BMP HANDBOOK DATED NOVEMBER 2018, OR THE LATEST REVISED EDITION, MAY APPLY DURING THE CONSTRUCTION OF THE PROJECT. ADDITIONAL MEASURES MAY BE REQUIRED AS NEEDED:

EC–1, SCHEDULING
EC–2, PRESERVATION OF EXISTING VEGETATION
WE–1, WIND EROSION CONTROL
NS–1, WATER CONSERVATION PRACTICES
NS–3, PAVING AND GRINDING OPERATIONS
NS–7, POTABLE WATER/IRRIGATION
NS–12, CONCRETE CURING
NS–13, CONCRETE FINISHING
WM–4, SPILL PREVENTION AND CONTROL
WM–7, CONTAMINATED SOIL MANAGEMENT
WM–9, SANITARY/SEPTIC WASTE MANAGEMENT
WM–10, LIQUID WASTE MANAGEMENT
SE–7, STREET SWEEPING AND VACUUMING

CONTRACTOR RESPONSIBLE FOR TRAFFIC CONTROL AND PEDESTRIAN CONTROL WHILE PERFORMING WORK IN THE PUBLIC RIGHT–OF–WAY.

SITE PREPARATION SHOULD BE IN ACCORDANCE WITH GEOTECHNICAL INVESTIGATION.

CONTRACTOR TO USE BEST MANAGEMENT PRACTICES TO ENSURE COMPLIANCE WITH NPDES AND WATER MANAGEMENT DISTRICT REGULATIONS FOR STORMWATER DISCHARGE FROM CONSTRUCTION ACTIVITIES AND DEWATERING OPERATIONS.

SWPPP NOTE

WDID: TBD

SITE DISTURBANCE IS GREATER THAN 1–ACRE. CONTRACTOR SHALL OBTAIN AND CONTRACT WITH A QUALIFIED SWPPP PRACTITIONER FOR THE DURATION OF CONSTRUCTION, IN COMPLIANCE WITH THE PROJECT APPROVED SWPPP REPORT, FROM INITIAL SITE DISTURBANCE TO FINAL SITE STABILIZATION. QSP SHALL FILE THE NOTICE OF TERMINATION (NOT) WITH THE STATE OF CALIFORNIA AT THE COMPLETION OF CONSTRUCTION.

NORTH

GRAPHIC SCALE IN FEET
0 10 20 40
1" = 20'
WHEN PRINTED AT FULL SIZE (24" X 36")

ENGINEERS SEAL
NOT FOR CONSTRUCTION
Amelia Beltran
REGISTERED PROFESSIONAL ENGINEER
AMELIA C. BELTRAN
No. 87468
CIVIL
STATE OF CALIFORNIA

Kimley»Horn
180 EAST OCEAN BLVD, SUITE 1200
LONG BEACH, CA 90802
(562) 549-2200

PREPARED UNDER THE DIRECT SUPERVISION OF:
Amelia Beltran DATE: 10/17/2025
AMELIA BELTRAN, R.C.E. NO. 87468 EXP. 09/30/2027

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GRADING PLAN FOR MCDONALD'S 6201 LINCOLN AVENUE, BUENA PARK, CA 90602
EROSION CONTROL PLAN

REVISIONS					CHECKED: AMELIA BELTRAN
NO.	DATE	BY	DESCRIPTION	APP:	RECOMMENDED:
					APPROVED:
					BENCHMARK: BASED ON NAVD 1988 DATUM, AND IS A SET MAG NAIL AND SHINER LOCATED NEAR THE SOUTHWEST CORNER OF PARCEL 1. ELEVATION = 60.41 FEET

REFERENCES:

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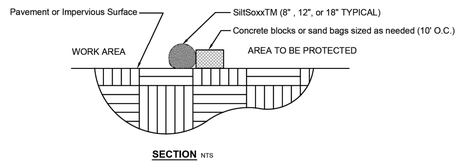
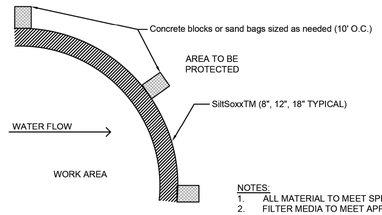
REV. NO.



SECTION NTS



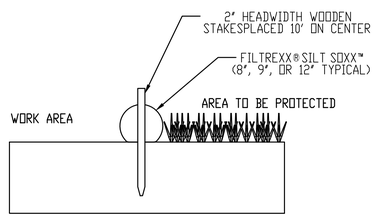
NOTES:
1. ALL MATERIAL TO MEET SPECIFICATIONS.
2. FILTER MEDIA TO MEET APPLICATION REQUIREMENTS.
3. FILTER MEDIA TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

PLAN NTS

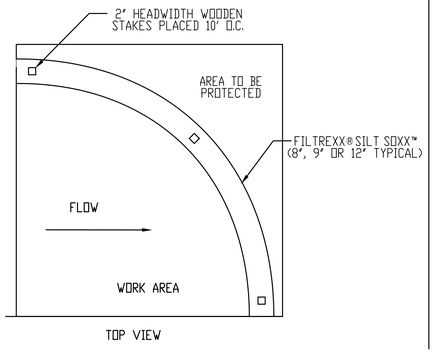
SiltSoxxTM for Sediment Control on Pavement

NTS

FILTREXX® SILT SOXX™



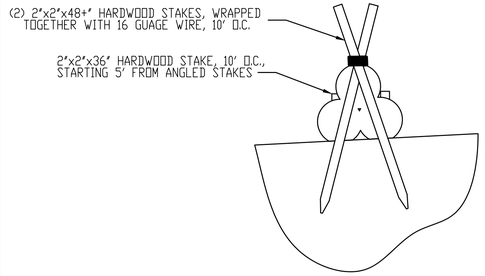
SECTION VIEW



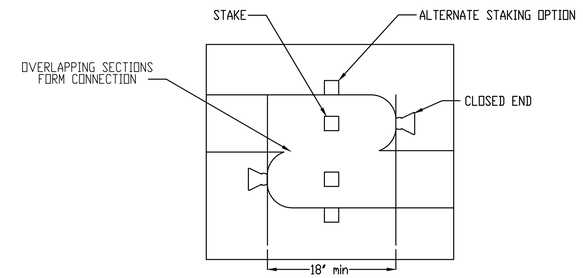
TOP VIEW

NOTES:
1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. SILT SOXX™FILL TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

FILTREXX® PYRAMID STAKING DETAIL



COMPOST SOCK CONNECTION/ATTACHMENT DETAIL



DIMENSIONS ARE IN INCHES
ANGULAR: BEND ± 2°
TWO PLACE DECIMAL ± .015
THREE PLACE DECIMAL ± .005
DO NOT SCALE DRAWING

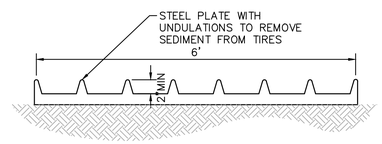
	NAME	DATE
DRAWN	DAN	6/11/2013
CHECKED		
ECO		

filtrexx® LAND IMPROVEMENT SYSTEMS let nature do it.
FILTREXX INTERNATIONAL 9342 GRANITE RIDGE DR. DAPHNE, ALABAMA 36526 USA PH: 251.626.0488 WWW.FILTREXX.COM

SIZE D | TITLE: FILTREXX® SILT SOXX™ & SEDIMENT TRAP™ DETAILS | REV: NC
DWG/PART NO. | SHEET 1 OF 1

FILTREXX SILTSOXX
N.T.S.

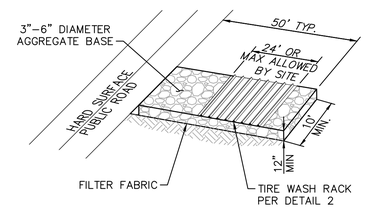
3



STEEL PLATE DETAIL

TIRE WASH RACK
N.T.S.

2



NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT–OF–WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

STABILIZED CONSTRUCTION ENTRANCE

1

ENGINEERS SEAL

NOT FOR CONSTRUCTION

Kimley»Horn
180 EAST OCEAN BLVD, SUITE 1200
LONG BEACH, CA 90802
(562) 549-2200

PREPARED UNDER THE DIRECT SUPERVISION OF:
Amelia Beltran DATE: 10/17/2025
AMELIA BELTRAN, R.C.E. NO. 87468 EXP. 09/30/2027

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GRADING PLAN FOR MCDONALD'S 6201 LINCOLN AVENUE, BUENA PARK, CA 90602
EROSION CONTROL DETAILS

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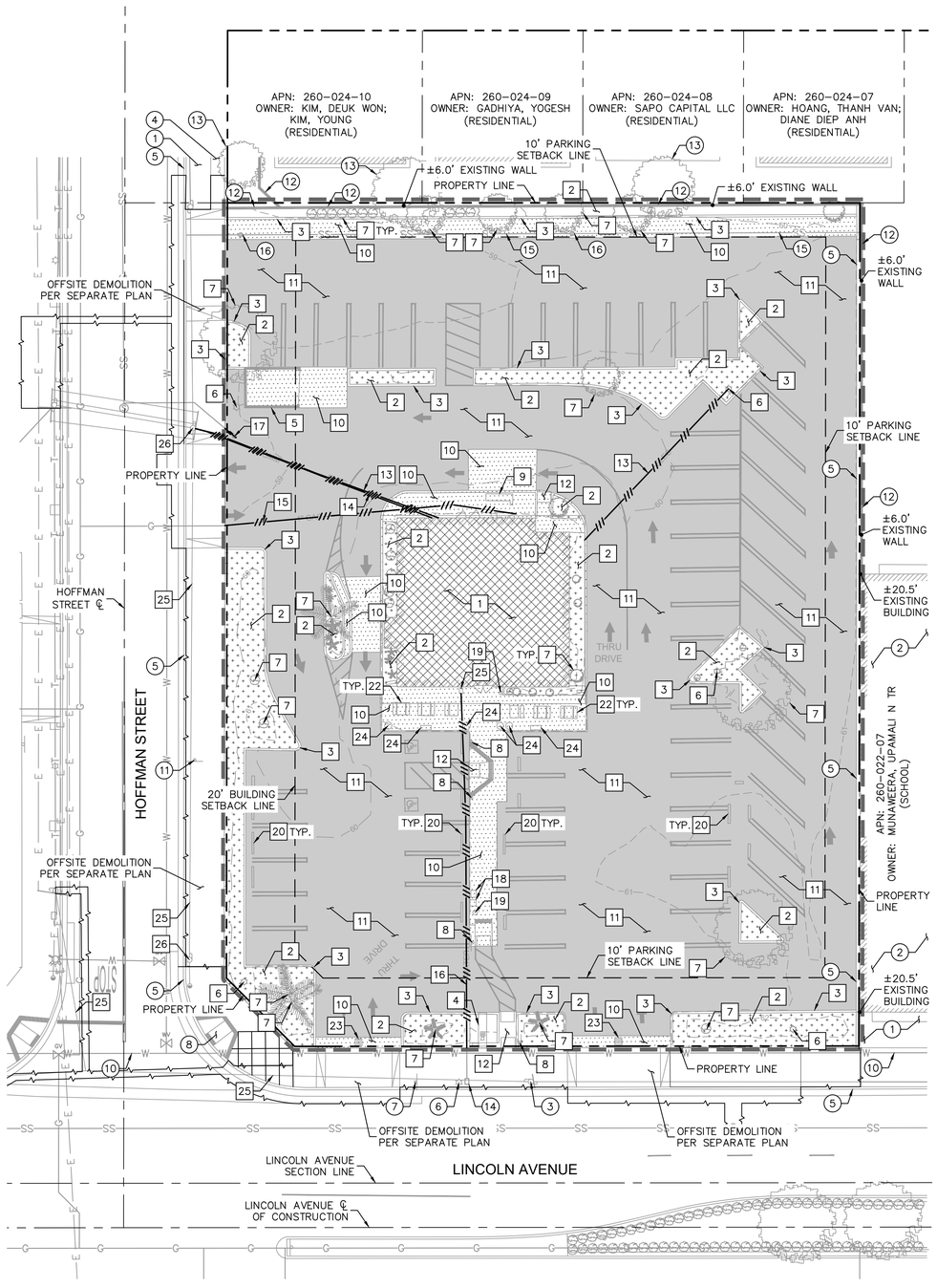

LEGEND

- CENTER LINE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- EASEMENT LINE / SETBACK LINE
- APPROXIMATE DEMOLITION LIMIT LINE ON-SITE
- SD — EXISTING STORM DRAIN LINE
- SS — EXISTING SEWER LINE
- G — EXISTING GAS LINE
- W — EXISTING WATER LINE
- E — EXISTING ELECTRICAL LINE
- T — EXISTING TELECOMMUNICATION LINE
- EXISTING UTILITY LINE TO BE DEMOLISHED
- SAWCUT LINE
- EXISTING ASPHALT PAVEMENT TO BE REMOVED
- EXISTING CONCRETE PAVEMENT TO BE REMOVED
- EXISTING BUILDING AND BUILDING PAD TO BE REMOVED
- EXISTING LANDSCAPE AREA TO BE REMOVED

EXISTING UTILITY NOTE

THE EXISTING UTILITIES SHOWN ON THE PLAN ARE BASED ON AVAILABLE RECORDS. THE CONTRACTOR MUST FIELD DETERMINE THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO ANY CONSTRUCTION. REPORT DISCREPANCIES AND POTENTIAL CONFLICTS WITH PROPOSED UTILITIES TO ENGINEER PRIOR TO INSTALLATION OF ANY PIPING.

IRRIGATION NOTE

CONTRACTOR TO CAP EXISTING IRRIGATION SYSTEM AND REMOVE IRRIGATION SYSTEM AS NEEDED FOR NEW CONSTRUCTION. CONTRACTOR TO MAINTAIN THAT NEIGHBORING PROPERTIES' IRRIGATION WILL CONTINUE TO WORK PROPERLY AFTER DEMOLITION OF LINES WITHIN THE CONSTRUCTION AREA.

UTILITY PURVEYORS

WATER
CITY OF BUENA PARK
WATER DIVISION
(714) 562-3721

SEWER
CITY OF BUENA PARK
SEWER SERVICES DIVISION
(714) 562-3655

STORM
CITY OF BUENA PARK
PUBLIC WORKS
(714) 562-3670

ELECTRIC
SOCAL EDISON
(800) 655-4555

PHONE
AT&T
ERNEST ESTACIO
(714) 618-9128

CABLE
CHARTER
AUGUSTIN SANCHEZ
(714) 448-5118

DEMOLITION NOTES

1. REMOVE EXISTING BUILDING AND SURROUNDING FEATURES. ALL UTILITIES TO BE CAPPED FOR FUTURE CONNECTION. FOUNDATION REMOVALS PER GEOTECHNICAL REPORT.
2. REMOVE EXISTING LANDSCAPE AND ALL IRRIGATION LINES, DRIPS, VALVES AND ASSOCIATED EQUIPMENT AS REQUIRED. REFER TO LANDSCAPE PLANS FOR MORE INFORMATION ON LIMITS OF LANDSCAPE REMOVAL. CONTRACTOR TO FIELD CONFIRM IRRIGATION ROUTING AND COORDINATE SHUTDOWNS/REROUTES/RELOCATIONS WITH ADJACENT TENANTS PRIOR TO CONSTRUCTION.
3. REMOVE EXISTING CURB / CURB & GUTTER.
4. REMOVE EXISTING PYLON SIGN INCLUDING POST AND FOUNDATION.
5. REMOVE EXISTING TRASH ENCLOSURE AND SURROUNDING FEATURES. UTILITIES TO BE CAPPED FOR FUTURE CONNECTION.
6. REMOVE EXISTING LIGHT POLE WITH CONCRETE BASE. CONTRACTOR TO FIELD CONFIRM CONDUIT ROUTING AND COORDINATE SHUTDOWNS/REROUTES/RELOCATIONS WITH ADJACENT TENANTS PRIOR TO CONSTRUCTION.
7. REMOVE EXISTING TREE AND SHRUB.
8. REMOVE EXISTING SIGN, INCLUDING POST AND FOUNDATION.
9. REMOVE EXISTING MENU BOARD, INCLUDING POST AND FOUNDATION.
10. REMOVE EXISTING CONCRETE PAVEMENT.
11. REMOVE EXISTING ASPHALT PAVEMENT.
12. REMOVE EXISTING CURB RAMP WITH TRUNCATED DOMES.
13. REMOVE EXISTING ELECTRICAL LINE.
14. REMOVE EXISTING COMMUNICATION LINE.
15. REMOVE EXISTING GAS LINE.
16. REMOVE EXISTING WATER LINE.
17. REMOVE EXISTING CLEANOUT.
18. REMOVE EXISTING NEWS STAND.
19. REMOVE EXISTING TRASH CAN.
20. REMOVE EXISTING WHEELSTOP.
21. REMOVE EXISTING FENCE.
22. REMOVE EXISTING TABLE AND BENCH.
23. REMOVE EXISTING CATCH BASIN.
24. REMOVE EXISTING PLANTER.
25. REMOVE EXISTING OVERHEAD TELECOMMUNICATION LINES TO BE UNDERGROUNDED PER SEPARATE PLAN AND PERMIT.
26. REMOVE EXISTING POWER POLE AND ASSOCIATED LINES. POWER POLE AND LINES TO BE UNDERGROUNDED PER SEPARATE PLAN AND PERMIT.

PROTECTION NOTES

1. PROTECT-IN-PLACE EXISTING LANDSCAPE AND ASSOCIATED IRRIGATION.
2. PROTECT-IN-PLACE EXISTING BUILDING AND FOUNDATION.
3. PROTECT-IN-PLACE EXISTING POWER POLE.
4. PROTECT-IN-PLACE EXISTING SIDEWALK.
5. PROTECT-IN-PLACE EXISTING CURB / CURB AND GUTTER.
6. PROTECT-IN-PLACE EXISTING STREET LIGHT POLE.
7. PROTECT-IN-PLACE EXISTING OCTA BUS STOP SIGN.
8. PROTECT-IN-PLACE EXISTING CURB RAMP.
9. PROTECT-IN-PLACE EXISTING TELECOMMUNICATION LINE.
10. PROTECT-IN-PLACE EXISTING WATER LINE.
11. PROTECT-IN-PLACE EXISTING SPEED LIMIT AND NO PARKING SIGN.
12. PROTECT-IN-PLACE EXISTING WALL.
13. PROTECT-IN-PLACE EXISTING TREE/PLANT.
14. PROTECT-IN-PLACE EXISTING WATER METER.
15. PROTECT-IN-PLACE EXISTING SANITARY SEWER LINE.
16. PROTECT-IN-PLACE SANITARY SEWER CLEANOUT. ADJUST TOP OF CLEANOUT TO GRADE.

GENERAL DEMOLITION NOTES

1. THE CONTRACTOR SHALL CLEAR THE PROJECT SITE AREA WITHIN THE CONFINES OF THE DEMOLITION LIMIT LINE. THE CONTRACTOR SHALL CAP IN PLACE ALL EXISTING UTILITIES AT THE DEMOLITION LIMIT LINE, UNLESS NOTED ON THE PLAN. THE CONTRACTOR SHALL DEMOLISH AND REMOVE FROM THE SITE ALL EXISTING UTILITY STRUCTURES, PLANTERS, TREES, AND ALL OTHER SITE FEATURES, UNLESS OTHERWISE NOTED ON THE PLAN.
2. DEMOLITION AND REMOVAL OF PAVEMENT INCLUDES PAVEMENT THICKNESS AS WELL AS BASE COURSE THICKNESS.
3. REMOVAL OF LANDSCAPING SHALL INCLUDE ROOTS AND ORGANIC MATERIAL.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY AND ALL PERMITS AND SHALL PAY ALL FEES NECESSARY FOR ENCROACHMENT, GRADING, DEMOLITION, AND DISPOSAL OF SAID MATERIALS AS REQUIRED BY PRIVATE, LOCAL AND STATE JURISDICTIONS.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR A SITE INSPECTION TO FULLY ACKNOWLEDGE THE EXTENT OF DEMOLITION WORK.
6. THE CONTRACTOR SHALL VERIFY AND LOCATE ALL EXISTING ABOVE AND UNDERGROUND UTILITIES. LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND ARE SHOWN FOR GENERAL INFORMATION ONLY.
7. DAMAGE TO ANY EXISTING UTILITIES AND SERVICES TO REMAIN SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR SHALL REPAIR AND/OR REPLACE IN KIND.
8. EROSION CONTROL MEASURES SHALL BE IMPLEMENTED TO PREVENT DEBRIS AND UNSUITABLE MATERIALS FROM ENTERING STORM DRAINS, SANITARY SEWERS AND STREETS.
9. DUST CONTROL MEASURES SHALL BE IMPLEMENTED DURING DEMOLITION.
10. DEMOLITION IS LIMITED TO WITHIN THE DEMOLITION LIMIT LINE UNLESS OTHERWISE NOTED.
11. CONTRACTOR SHALL REMOVE DEMOLISHED MATERIALS FROM THE SITE AS WORK PROGRESSES.
13. ALL DEMOLITION SHALL COMPLY WITH CHAPTER 24 AND ARTICLE 87 OF THE CALIFORNIA FIRE CODE.
14. CONTRACTOR TO USE CARE IN HANDLING DEBRIS FROM SITE TO ENSURE THE SAFETY OF THE PUBLIC. HAUL ROUTE TO BE CLOSELY MONITORED FOR DEBRIS OR MATERIALS TRACKED ONTO ADJOINING ROADWAYS, SIDEWALKS, ETC. ROADWAYS AND WALKWAYS TO BE CLEARED DAILY OR AS NECESSARY TO MAINTAIN PUBLIC SAFETY.
15. SEE SHEET 8 FOR REMAINING INLET PROTECTION AND EROSION PREVENTION.
16. CONTRACTOR TO INSTALL CHAIN LINK FENCE WITH MESH SCREEN TO PROTECT PUBLIC FROM ENTERING CONSTRUCTION AREA.
17. CONTINUOUS ACCESS SHALL BE MAINTAINED FOR SURROUNDING PROPERTIES AT ALL TIMES DURING DEMOLITION OF EXISTING FACILITIES.
18. ALL MATERIAL REMOVED FROM THIS SITE BY THE CONTRACTOR SHALL BE DISPOSED OF BY THE CONTRACTOR IN A LEGAL MANNER.
19. REFER TO THE TOPOGRAPHIC SURVEY FOR ADDITIONAL DETAILS OF EXISTING STRUCTURES, ETC., LOCATED WITHIN THE PROJECT SITE. UNLESS OTHERWISE NOTED, ALL EXISTING BUILDINGS, STRUCTURES, SLABS, CONCRETE, ASPHALT, DEBRIS PILES, SIGNS, AND ALL APPURTENANCES ARE TO BE REMOVED FROM THE SITE BY THE CONTRACTOR AND PROPERLY DISPOSED OF IN A LEGAL MANNER AS PART OF THIS CONTRACT. SOME ITEMS TO BE REMOVED MAY NOT BE DEPICTED ON THE TOPOGRAPHIC SURVEY. REFER TO THIS PLAN FOR THE LIMITS OF ASPHALT REMOVAL. IF ANY ITEMS ARE IN QUESTION, THE CONTRACTOR SHALL CONTACT THE OWNER PRIOR TO REMOVAL OF SAID ITEMS.
20. THE CONTRACTOR SHALL REFER TO THIS PLAN AND LANDSCAPE PLAN FOR DEMOLITION/PRESERVATION OF EXISTING TREES. ALL TREES NOT SPECIFICALLY SHOWN TO BE PRESERVED OR RELOCATED SHALL BE REMOVED AS A PART OF THIS CONTRACT. TREE PROTECTION FENCING SHALL BE INSTALLED AS NECESSARY PRIOR TO ANY DEMOLITION.
21. CONTRACTOR SHALL ADJUST GRADE OF ANY RIMS/COVERS TO THE FINISHED ELEVATIONS OF EXISTING UTILITIES TO REMAIN.
22. REFER TO DEMOLITION NOTES ON SHEET 5.

NORTH

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WHEN PRINTED AT FULL SIZE (24" X 36")

ENGINEERS SEAL
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REGISTERED PROFESSIONAL ENGINEER AMELIA M BELTRAN 87468 CIVIL STATE OF CALIFORNIA

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LONG BEACH, CA 90802
(562) 549-2200
PREPARED UNDER THE DIRECT SUPERVISION OF:
DATE: 10/17/2025
AMELIA BELTRAN, R.C.E. NO. 87468 EXP. 09/30/2027

811 Know what's below. Call before you dig.

LICENSED LANDSCAPE ARCHITECT 6633 RANDALL KOPFF 9/30/2026 10/17/2025 STATE OF CALIFORNIA

401 B STREET, SUITE 600
SAN DIEGO, CA 92101
(602) 705-3864

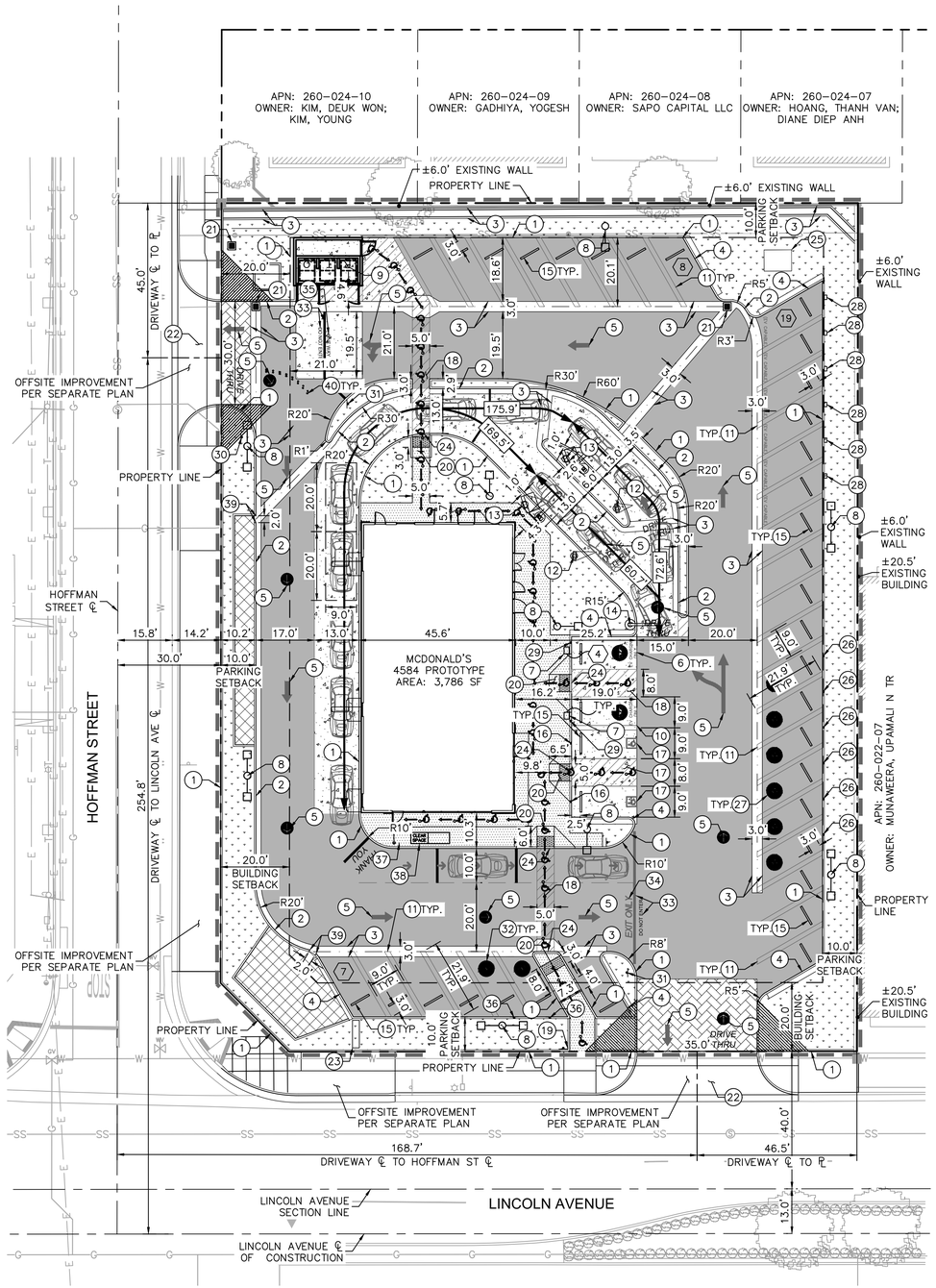
RANDALL KOPFF, P.L.A. NO. 6633

GRADING PLAN FOR MCDONALD'S 6201 LINCOLN AVENUE, BUENA PARK, CA 90602 DEMOLITION PLAN						
REVISIONS					CHECKED: AMELIA BELTRAN	
NO.	DATE	BY	DESCRIPTION	APP:	RECOMMENDED:	
					APPROVED:	
					BENCHMARK: BASED ON NAVD 1988 DATUM, AND IS A SET MAG NAIL AND SHINER LOCATED NEAR THE SOUTHWEST CORNER OF PARCEL 1. ELEVATION = 60.41 FEET	

REFERENCES:

GP- REV. NO.

SHEET 10 OF 18



LEGEND

- CENTER LINE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- EASEMENT / SETBACK LINE
- APPROXIMATE CIVIL LIMIT OF WORK LINE
- 0" CURB FACE
- PARKING STALL COUNT
- PROPOSED LIGHT POLE. REFER TO ELECTRICAL PLANS FOR MORE INFORMATION.
- STANDARD DUTY CONCRETE PAVEMENT.
- HEAVY DUTY CONCRETE PAVEMENT. THICKENED EDGE PER DETAIL 2, SHEET 15 AT ALL EDGE CONDITIONS. PRIOR TO BIDDING, CONTRACTOR SHALL CONFIRM WITH MCDONALD'S OWNER/OPERATOR AND/OR MCDONALD'S AREA CONSTRUCTION MANAGER IF DRIVE-THROUGH CONCRETE WILL BE STAINED. IF DRIVE-THROUGH CONCRETE WILL BE STAINED, CONTRACTOR SHALL USE JET BLACK BY DAVIS COLORS OR SPECIFICATION PER OWNER OR ACM.
- LANDSCAPE/PLANTER AREA. REFER TO LANDSCAPE PLANS FOR MORE INFORMATION.
- HEAVY DUTY ASPHALT PAVEMENT. SECTION PER DETAIL 1, SHEET 15.
- DETECTABLE WARNING SYSTEM.
- PROPOSED DECORATIVE CONCRETE PAVEMENT. REFER TO TO LANDSCAPE PLANS FOR MORE INFORMATION.
- BIORETENTION AREA.
- SIGHT DISTANCE TRIANGLE

PAVING AND JOINTING NOTES

1. EXPANSION/ISOLATION JOINTS SHALL BE PLACED BETWEEN BUILDING AND CURBS. SEE DETAIL 4, SHEET 16.
2. CONTROL JOINT SPACING SHALL BE PER GEOTECHNICAL REPORT.
3. EXPANSION/ISOLATION JOINTS SHALL BE USED WHEREVER THE PAVEMENT WILL ABUT A STRUCTURAL ELEMENT (LIGHT POLES, RETAINING WALLS, EXISTING CONCRETE PAVEMENT, BUILDING WALLS, MANHOLES, ETC) AND SEALED WITH POLYURETHANE SEALANT. SEE DETAIL 4, SHEET 16.
4. SAW-CUT CONTROL JOINTS WITHIN 12 HOURS OF POUR.
5. CONSTRUCTION JOINTS SHALL BE PER DETAIL 3, SHEET 17.
6. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT PERMANENT PAVEMENT IS NOT PLACED UNTIL ALL REQUIRED CONDUITS AND SLEEVING FOR IRRIGATION, UTILITIES, LIGHTING, ETC. HAVE BEEN PROPERLY INSTALLED.
7. DRIVE-THROUGH CONCRETE PAVEMENT REINFORCEMENT, IF REQUIRED, SHALL BE PER GEOTECHNICAL REPORT.

CONSTRUCTION NOTES

1. CONSTRUCT CONCRETE CURB PER DETAIL 3, SHEET 15.
2. CONSTRUCT CONCRETE CURB AND GUTTER PER DETAIL 5, SHEET 15.
3. CONSTRUCT 3.0' WIDE VALLEY GUTTER PER DETAIL 12, SHEET 15.
4. CONSTRUCT 18" WALK-OFF CURB PER DETAIL 7, SHEET 15.
5. INSTALL DIRECTIONAL MARKING PER PLAN. REFER TO DETAIL 9, SHEET 15 FOR MORE DETAILS.
6. INSTALL EV CHARGING STALL STRIPING AND "EV CHARGING ONLY" IN 12" HIGH WHITE LETTERS AT THE END OF PARKING STALL.
7. INSTALL E/V CHARGING STATION. REFER TO ELECTRICAL PLANS FOR MORE DETAILS.
8. INSTALL SITE LIGHTING. REFER TO ELECTRICAL PLAN FOR MORE DETAILS.
9. INSTALL COVERED TRASH ENCLOSURE AND RECYCLING BIN STORAGE. REFER TO ARCHITECTURAL PLANS FOR MORE DETAILS. TRASH ENCLOSURE APPROACH TO BE HEAVY DUTY CONCRETE PAVEMENT PER DETAIL 1, SHEET 15. CONCRETE REINFORCEMENT AND JOIN ASPHALT CONCRETE PER DETAIL 13, SHEET 15.
10. STANDARD 90° PARKING STALL DOUBLE LINE STRIPING (MINIMUM 4" WIDE). DOUBLE LINE STRIPES MUST HAVE MINIMUM 8" SEPARATION. REFER TO DETAIL 6, SHEET 15 FOR MORE DETAILS.
11. STANDARD 60° PARKING STALL DOUBLE LINE STRIPING (MINIMUM 4" WIDE). DOUBLE LINE STRIPES MUST HAVE MINIMUM 8" SEPARATION. REFER TO DETAIL 7, SHEET 16 FOR MORE DETAILS.
12. INSTALL PREVIEW BOARD. REFER TO ARCHITECTURAL PLANS FOR MORE DETAILS.
13. INSTALL ORDER BOARD. REFER TO ARCHITECTURAL PLANS FOR MORE DETAILS.
14. INSTALL HEIGHT DETECTOR POLE. REFER TO ARCHITECTURAL PLANS FOR MORE DETAILS.
15. WHEELSTOPS FOR PARKING SPACES ADJACENT TO WALKWAYS PER DETAIL 8, SHEET 15.
16. INSTALL ACCESSIBLE PARKING STALL SIGN PER DETAIL 10, SHEET 15.
17. INSTALL ACCESSIBLE PARKING STALL STRIPING PER DETAIL 5, SHEET 17.
18. INSTALL ACCESSIBLE PATH OF TRAVEL STRIPING PER DETAIL 14, SHEET 15.
19. INSTALL ACCESSIBLE PATH OF TRAVEL SIGN PER DETAIL 7, SHEET 17.
20. INSTALL ACCESSIBLE RAMP WITH DETECTABLE WARNING (TRUNCATED DOMES PER DETAIL 1, SHEET 17 AND DETAIL 8, SHEET 16.
21. INSTALL 24" X 24" JENSEN PRECAST DROP INLET WITH CATCH BASIN FILTER INSERT FOR TRASH CAPTURE PER DETAIL 8, SHEET 17.
22. CONSTRUCT DRIVEWAY PER CITY OF BUENA PARK STANDARD PLAN NO. 213.
23. INSTALL MCDONALD'S SITE SIGNAGE. REFER TO ARCHITECTURAL PLANS FOR MORE DETAILS.
24. CONSTRUCT 0" CONCRETE CURB PER DETAIL 4, SHEET 15.
25. PROPOSED TRANSFORMER PER SEPARATE PLAN AND PERMIT.
26. MOBILE PICK-UP PARKING STALL SIGN. REFER TO ARCHITECTURAL PLANS FOR MORE DETAILS.
27. MOBILE PICK-UP PARKING STALL STRIPING. REFER TO ARCHITECTURAL PLANS FOR MORE DETAILS.
28. FUTURE INSTALLATION OF EV CHARGING STATION.
29. "EV CHARGING ONLY" STALL SIGN. SIGN BASE PER DETAIL 6, SHEET 16.
30. "RIGHT TURN ONLY" SIGN PER MUTCD R3-2. SIGN BASE PER DETAIL 6, SHEET 16.
31. "DO NOT ENTER" SIGN PER MUTCD R5-1. SIGN BASE PER DETAIL 6, SHEET 16.
32. MCDELIVERY PARKING STALL STRIPING. REFER TO ARCHITECTURAL PLANS FOR MORE DETAILS.
33. "DO NOT ENTER" PAVEMENT MARKING WITH BAR STRIPING PER DETAIL 9, SHEET 15.
34. "EXIT ONLY" PAVEMENT MARKING PER DETAIL 9, SHEET 15.
35. "ONE-WAY" PAVEMENT MARKING PER DETAIL 9, SHEET 15.
36. MCDELIVERY PARKING STALL SIGN. SIGN BASE PER DETAIL 6, SHEET 16.
37. INSTALL SHORT TERM BIKE RACK PER DETAIL 8, SHEET 16.
38. INSTALL LONG TERM BIKE LOCKER PER DETAIL 5, SHEET 16.
39. INSTALL 2' CURB CUT.
40. INSTALL WHITE 4" ROUND RAISED PAVEMENT MARKER PER MUTCD 3B.11 AND 3B.14

SITE INFORMATION

PROJECT DESCRIPTION:	DEMOLITION OF EXISTING PARKING LOT AND BUILDING. NEW CONSTRUCTION OF A MCDONALD'S DRIVE THRU RESTAURANT AND PARKING LOT.
ADDRESS:	6201 LINCOLN AVENUE, BUENA PARK, CA 90602
APN:	260-022-05, 260-022-06
ZONING DISTRICT:	CS-COMMUNITY SHOPPING (EXISTING)
ADJACENT ZONING DISTRICTS:	N: RM-10 (LOW DENSITY MULTIFAMILY RESIDENTIAL) S: N/A (CITY OF CYPRESS) E: RM-10 (LOW DENSITY MULTIFAMILY RESIDENTIAL) W: CS – (COMMUNITY SHOPPING)
LAND USE:	COMMERCIAL
ADJACENT LAND USE:	N: RESIDENTIAL S: N/A (CITY OF CYPRESS) E: RESIDENTIAL W: COMMUNITY SHOPPING
GENERAL PLAN DISTRICT:	GC – GENERAL COMMERCIAL
FLOOD ZONE:	ZONE X – AREAS DETERMINED TO BE OUTSIDE THE 0.02% ANNUAL CHANCE FLOODPLAIN.

TOTAL DISTURBED AREA:	47,173 S.F.	(1.08 AC)	
TOTAL PAD AREA:	3,786 S.F.	(0.09 AC)	
TOTAL LOT AREA:	45,478 S.F.	(1.04 AC)	
LOT COVERAGE			
TOTAL SITE AREA:	45,478 S.F.	(1.04 AC)	100%
BUILDING AREA:	3,786 S.F.	(0.09 AC)	8.3%
IMPERVIOUS AREA:	33,207 S.F.	(0.76 AC)	73.0%
LANDSCAPE AREA:	8,485 S.F.	(0.19 AC)	18.7%
BUILDING SETBACK			
FRONT (N):	20.0'		
FRONT (S):	20.0'		
SIDE (E):	10.0'		
SIDE (W):	10.0'		

PARKING SUMMARY:

3,786 S.F. (1 STALL/100 S.F.) = 38 STALLS REQUIRED PER CITY CODE

- 3,786 S.F. (BUILDING) = 3,786 S.F. TOTAL
- ADA PARKING FOR 26-50 PARKING STALLS = 2 ADA PARKING STALLS REQUIRED, PER 2022 CBC.
- FUTURE EV FOR 26-50 PARKING STALLS = 6 FUTURE EV STALLS AND 2 EVCS STALLS REQUIRED PER 2022 CALGREEN 1 FUTURE EV STALL MUST BE VAN ACCESSIBLE.

TOTAL NUMBER OF PARKING SPACES PROVIDED = 38

PARKING TABLE:	REQUIRED	PROVIDED
STANDARD	27	27
COMPACT (C)	–	–
MOTORCYCLE	–	–
EV CHARGING	2	2
EV READY	6	6 (INCLUDES 1 VAN ACCESSIBLE)
ACCESSIBLE	2	2 (INCLUDES 1 VAN ACCESSIBLE)
TOTAL:	38	38

*80 FEET FROM PICK-UP WINDOW TO THE ORDER POINT, AND 80 FEET FROM THE ORDER POINT TO THE END OF THE DRIVE-THROUGH LANE HAS BEEN PROVIDED PER THE CITY'S CODE REQUIREMENTS.

NORTH

GRAPHIC SCALE IN FEET
0 10 20 40
1" = 20'
WHEN PRINTED AT FULL SIZE (24" X 36")

ENGINEERS SEAL

REGISTERED PROFESSIONAL ENGINEER AMELIA M. BELTRAN No. 87468 CIVIL STATE OF CALIFORNIA
NOT FOR CONSTRUCTION

Kimley»Horn
180 EAST OCEAN BLVD, SUITE 1200
LONG BEACH, CA 90802
(562) 549-2200

PREPARED UNDER THE DIRECT SUPERVISION OF:
DATE: 10/17/2025
AMELIA BELTRAN, R.C.E. NO. 87468 EXP. 09/30/2027

811 Know what's below. Call before you dig.

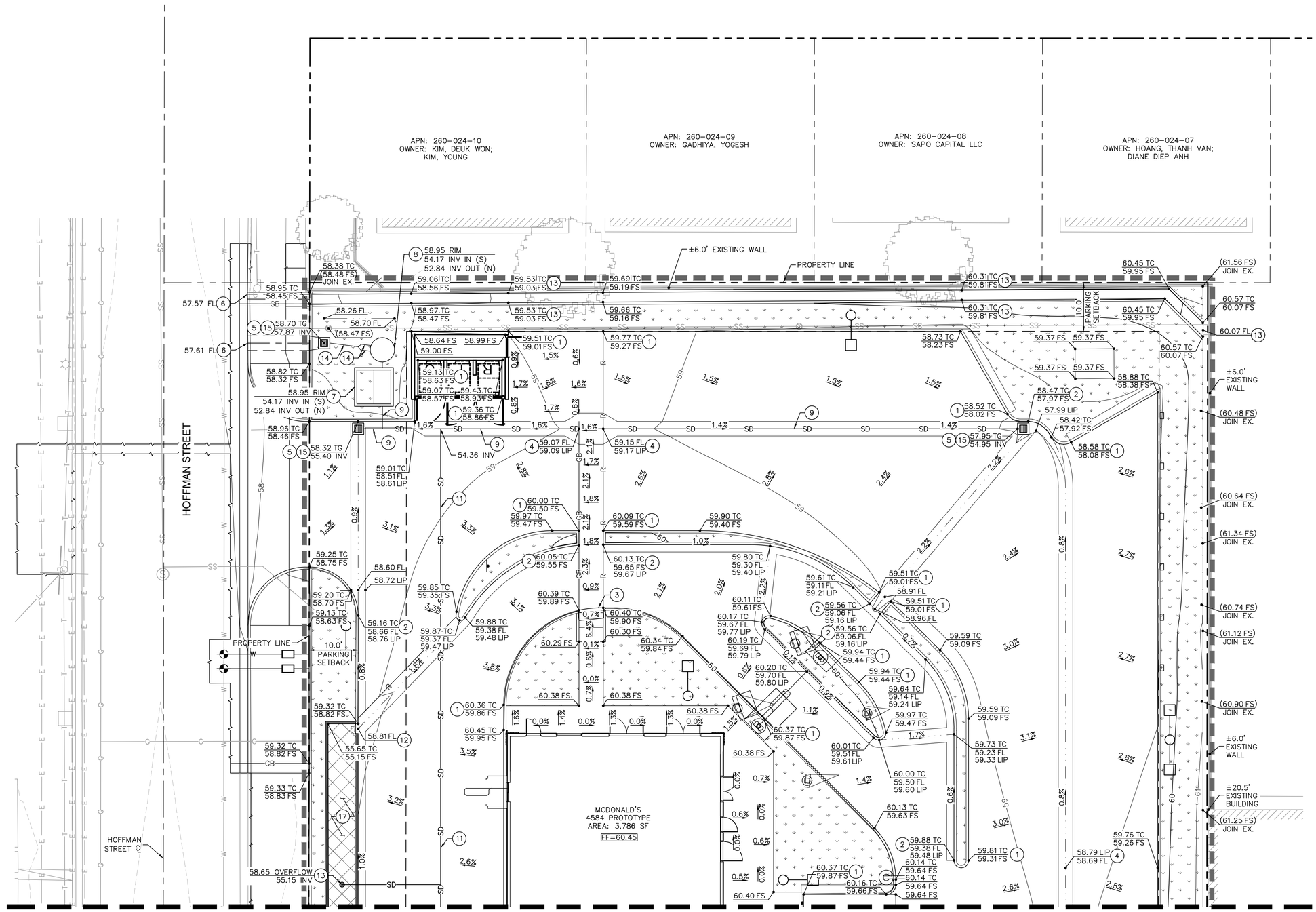
GRADING PLAN FOR MCDONALD'S 6201 LINCOLN AVENUE, BUENA PARK, CA 90602
SITE KEYNOTE PLAN

REVISIONS					CHECKED: AMELIA BELTRAN
NO.	DATE	BY	DESCRIPTION	APP:	RECOMMENDED:
					APPROVED:
					BENCHMARK: BASED ON NAVD 1988 DATUM, AND IS A SET MAG NAIL AND SHINER LOCATED NEAR THE SOUTHWEST CORNER OF PARCEL 1. ELEVATION = 60.41 FEET

REFERENCES:

GP- REV. NO.

SHEET OF 18



LEGEND

- CENTER LINE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- EASEMENT LINE / SETBACK LINE
- APPROXIMATE LIMIT OF WORK LINE
- R — PROPOSED RIDGE LINE
- GB — PROPOSED GRADE BREAK LINE
- 60.95 TC / 60.45 FS — PROPOSED SPOT ELEVATION
- (60.95 TC) / (60.45 FS) — EXISTING SPOT ELEVATION
- PROPOSED FLOW LINE
- SD — PROPOSED STORM DRAIN LINE
- EXISTING FLOW DIRECTION
- LANDSCAPE AREA
- BIORETENTION AREA

GRADING AND DRAINAGE NOTES

1. PROPOSED 6" CURB PER DETAIL 3, SHEET 15.
2. PROPOSED 6" CURB AND GUTTER PER DETAIL 5, SHEET 15.
3. PROPOSED 0" CURB PER DETAIL 4, SHEET 15.
4. PROPOSED 3.0' WIDE CONCRETE VALLEY GUTTER PER DETAIL 12, SHEET 15.
5. 24" X 24" DROP INLET WITH CATCH BASIN FILTER INSERT FOR TRASH CAPTURE PER DETAIL 8, SHEET 17.
6. PROPOSED 3.0' WIDE PARKWAY DRAIN THROUGH CURB FACE PER CITY OF BUENA PARK STANDARD 215.
7. PROPOSED MODULAR WETLAND SYSTEM PER DETAIL 1, SHEET 18.
8. PROPOSED SUMP PUMP PER DETAIL 3, SHEET 18.
9. PROPOSED 12" SDR-26 PVC STORM DRAIN PIPE AT 0.5% MIN. PIPE BEDDING AND TRENCHING PER DETAIL 1, SHEET 16.
10. PROPOSED 4" CURB PER DETAIL 3, SHEET 15.
11. PROPOSED 8" SDR-26 PVC STORM DRAIN PIPE AT 0.5% MIN. PIPE BEDDING AND TRENCHING PER DETAIL 1, SHEET 16.
12. PROPOSED 2' CURB CUT.
13. PROPOSED CONCRETE CHANNEL PER DETAIL 2, SHEET 18.
14. PROPOSED 3" SDR-26 PVC STORM DRAIN PIPE AT 0.5% MIN. PIPE BEDDING AND TRENCHING PER DETAIL 1, SHEET 16.
15. INSTALL "NO DUMPING DRAINS TO OCEAN" STENCIL ON CURB ADJACENT TO CATCH BASIN PER DETAIL 2, SHEET 16.
16. PROPOSED BIORETENTION A PER DETAIL 3 AND 4, SHEET 17.
17. PROPOSED BIORETENTION B PER DETAIL 3 AND 4, SHEET 17.

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PREPARED UNDER THE DIRECT SUPERVISION OF:
Amelia Beltran
DATE: 10/17/2025
AMELIA BELTRAN, R.C.E. NO. 87468 EXP. 09/30/2027

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GRADING PLAN FOR MCDONALD'S 6201 LINCOLN AVENUE, BUENA PARK, CA 90602
GRADING AND DRAINAGE PLAN

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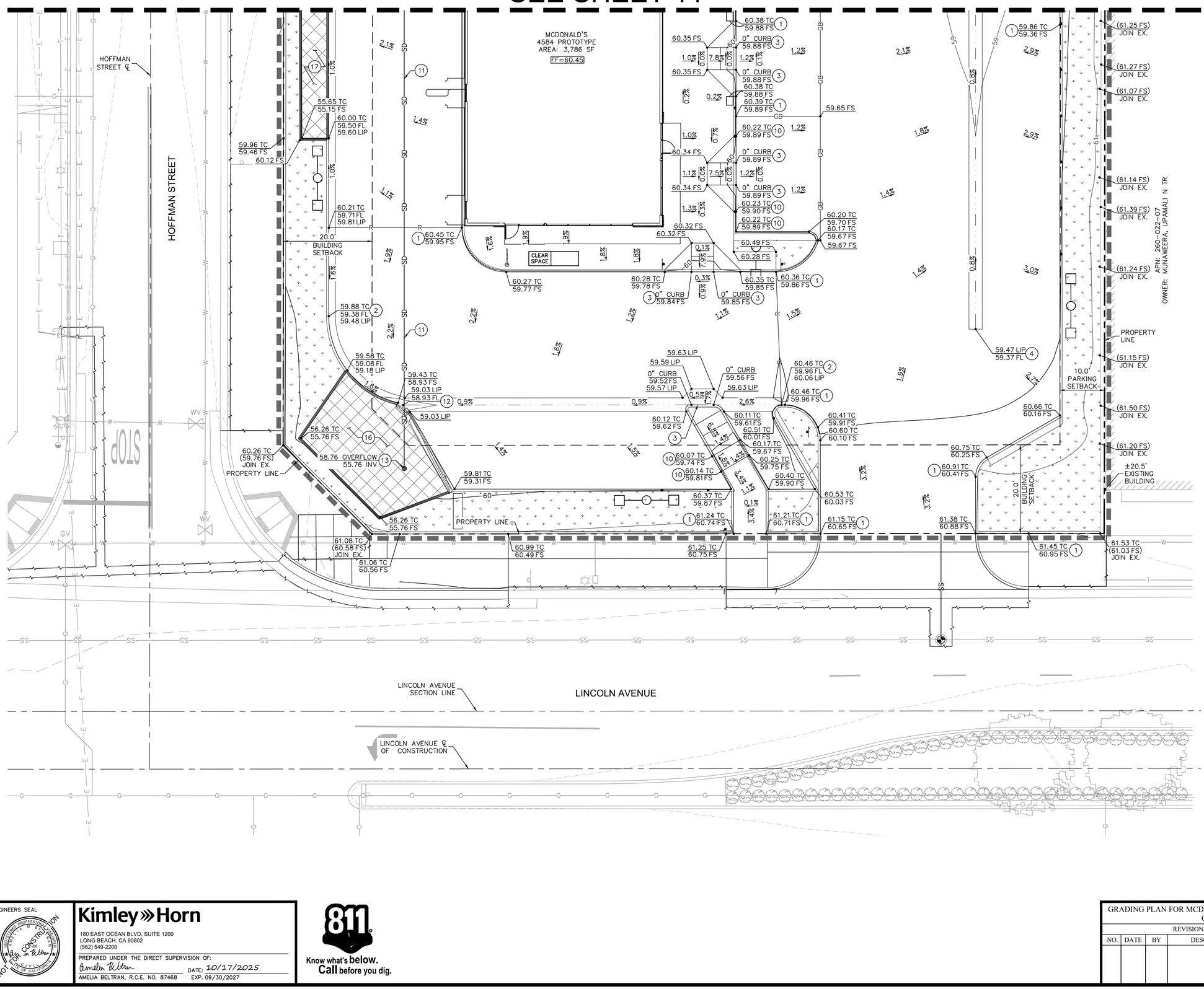
REFERENCES:

GP-

REV. NO.

SHEET 12 OF 18

SEE SHEET 11



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PREPARED UNDER THE DIRECT SUPERVISION OF:
AMELIA BELTRAN, R.C.E. NO. 87468 DATE: 10/17/2025 EXP. 09/30/2027

811 Know what's below. Call before you dig.

GRADING PLAN FOR MCDONALD'S 6201 LINCOLN AVENUE, BUENA PARK, CA 90602
GRADING AND DRAINAGE PLAN

REVISIONS					CHECKED: AMELIA BELTRAN
NO.	DATE	BY	DESCRIPTION	APP:	RECOMMENDED:
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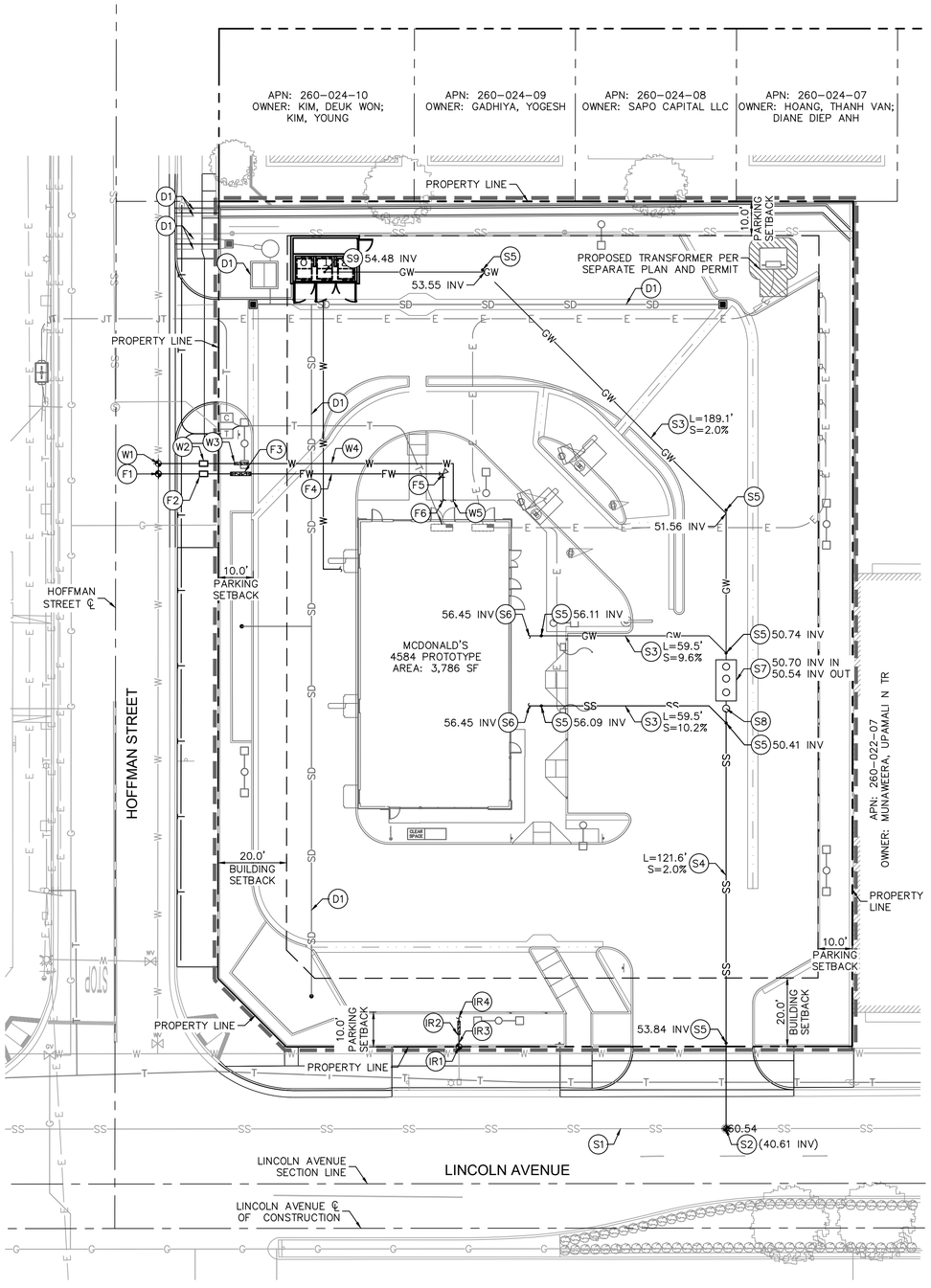
BENCHMARK: BASED ON NAVD 1988 DATUM, AND IS A SET MAG NAIL AND SHINER LOCATED NEAR THE SOUTHWEST CORNER OF PARCEL 1. ELEVATION = 60.41 FEET

REFERENCES:

GP- REV. NO.



LEGEND

	CENTER LINE
	PROPERTY LINE
	RIGHT-OF-WAY LINE
	EASEMENT LINE / SETBACK LINE
	APPROXIMATE LIMIT OF WORK LINE
	PROPOSED FLOW LINE
W	EXISTING WATER LINE
SS	EXISTING SANITARY SEWER LINE
G	EXISTING GAS LINE
E	EXISTING UNDERGROUND ELECTRICAL LINE
T	EXISTING UNDERGROUND TELECOMMUNICATIONS LINE
SD	EXISTING STORM DRAIN LINE
W	PROPOSED WATER LINE
FW	PROPOSED FIRE WATER LINE
SS	PROPOSED SANITARY SEWER LINE
SD	PROPOSED STORM DRAIN LINE

GENERAL NOTES

1. THE EXISTING UTILITIES SHOWN ON THE PLAN ARE BASED ON AVAILABLE RECORDS. A TOPOGRAPHICAL AND UNDERGROUND SURVEY WILL BE REQUIRED TO DETERMINE THE FINAL LOCATION OF ALL EXISTING AND PROPOSED UTILITY ROUTINGS.

2. COORDINATION WITH UTILITY PURVEYORS WILL BE REQUIRED TO DETERMINE FINAL LOCATION OF ALL PROPOSED CONNECTIONS TO PUBLIC MAIN LINES.

3. ALL DRY AND WET UTILITY CROSSING SHALL HAVE MIN. 12" VERTICAL CLEARANCE.

DOMESTIC WATER CONSTRUCTION NOTES

(W1) CONNECT TO EXISTING WATER LINE PER CITY OF BUENA PARK STD. DWG. NO. 524.

(W2) INSTALL 2" DOMESTIC WATER METER PER CITY OF BUENA PARK STD. DWG. NO. 517.

(W3) INSTALL 2" AMES DOMESTIC WATER BACKFLOW PREVENTER PER CITY OF BUENA PARK STD. DWG. NO. 537.

(W4) INSTALL 2" PVC SCH. 80 DOMESTIC WATER LINE. PIPE BEDDING AND TRENCHING PER DETAIL 1, SHEET 16.

(W5) BUILDING POINT OF CONNECTION (5-FT FROM BUILDING FACE).

IRRIGATION WATER CONSTRUCTION NOTES

(IR1) CONNECT TO EXISTING WATER LINE PER CITY OF BUENA PARK STD. DWG. NO. 524.

(IR2) INSTALL 1" AMES DOMESTIC WATER BACKFLOW PREVENTER PER CITY OF BUENA PARK STD. DWG. NO. 537.

(IR3) INSTALL 1" PVC SCH. 80 DOMESTIC WATER LINE. PIPE BEDDING AND TRENCHING PER DETAIL 1, SHEET 16.

(IR4) IRRIGATION POINT OF CONNECTION. REFER TO LANDSCAPE AND IRRIGATION PLANS FOR CONTINUATION.

SANITARY SEWER CONSTRUCTION NOTES

(S1) EXISTING SEWER MAIN TO REMAIN.

(S2) CONNECT TO EXISTING SEWER MANHOLE PER CITY OF BUENA PARK STD. DWG. NO. 507. CONTRACTOR TO POTHOLE AND VERIFY LOCATION AND INVERT OF EXISTING MAIN PRIOR TO TRENCHING AND SEWER INSTALLATION. IF DISCREPANCIES ARE FOUND, NOTIFY ENGINEER FOR FURTHER DIRECTION. CONTRACTOR TO SCOPE EXISTING LINE TO VERIFY CONDITION PRIOR TO TRENCHING AND SEWER INSTALLATION.

(S3) INSTALL 4" SDR-35 PVC SEWER PIPE AT MINIMUM 2% SLOPE. PIPE BEDDING AND TRENCHING PER DETAIL 1, SHEET 16.

(S4) INSTALL 6" SDR-35 PVC SEWER PIPE AT MINIMUM 2% SLOPE. PIPE BEDDING AND TRENCHING PER DETAIL 1, SHEET 16.

(S5) INSTALL SEWER CLEANOUT PER CITY OF BUENA PARK STD. DWG. NO. 511.

(S6) BUILDING POINT OF CONNECTION.

(S7) INSTALL JENSEN PRECAST 1500 GAL. GREASE INTERCEPTOR. REFER TO PLUMBING PLANS FOR MORE INFORMATION.

(S8) INSTALL JENSEN PRECAST SAMPLE BOX. REFER TO PLUMBING PLANS FOR MORE INFORMATION.

(S9) INSTALL 4" NDS AREA DRAIN IN TRASH ENCLOSURE PER DETAIL 6, SHEET 17.

STORM DRAIN CONSTRUCTION NOTES

(D1) REFER TO GRADING PLAN FOR MORE INFORMATION ON PROPOSED SITE STORM DRAIN IMPROVEMENTS.

FIRE WATER CONSTRUCTION NOTES

(F1) CONNECT TO EXISTING WATER LINE PER CITY OF BUENA PARK STD. DWG. NO. 524.

(F2) INSTALL 4" FIRE WATER METER PER CITY OF BUENA PARK STD. DWG. NO. 528.

(F3) INSTALL 4" AMES DOUBLE DETECTOR CHECK ASSEMBLY PER CITY OF BUENA PARK STD. DWG. NO. 528A & 528B.

(F4) INSTALL 4" PVC C-900 CLASS 150 FIRE WATER LINE PER CITY OF BUENA PARK STD. DWG. NO. 528A & 528B.

(F5) INSTALL 4" PVC C-900 CLASS 150 BEND WITH THRUST BLOCK PER DETAIL 4, SHEET 16.

(F6) BUILDING POINT OF CONNECTION (5-FT FROM BUILDING FACE)

NORTH

GRAPHIC SCALE IN FEET
0 10 20 40
1" = 20'
WHEN PRINTED AT FULL SIZE (24" X 36")

ENGINEERS SEAL
REGISTERED PROFESSIONAL ENGINEER AMELIA M BELTRAN CIVIL STATE OF CALIFORNIA
NOT FOR CONSTRUCTION

Kimley»Horn
180 EAST OCEAN BLVD, SUITE 1200
LONG BEACH, CA 90802
(562) 549-2200

PREPARED UNDER THE DIRECT SUPERVISION OF:
Amelia Beltran DATE: 10/17/2025
AMELIA BELTRAN, R.C.E. NO. 87468 EXP. 09/30/2027

811 Know what's below. Call before you dig.

GRADING PLAN FOR MCDONALD'S 6201 LINCOLN AVENUE, BUENA PARK, CA 90602
UTILITY PLAN

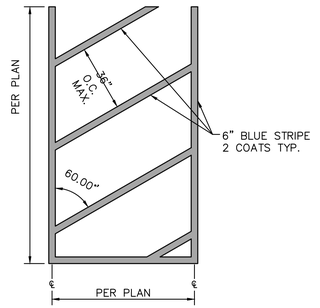
REVISIONS					CHECKED: AMELIA BELTRAN
NO.	DATE	BY	DESCRIPTION	APP:	RECOMMENDED:
					APPROVED:
					BENCHMARK: BASED ON NAVD 1988 DATUM, AND IS A SET MAG NAIL AND SHINER LOCATED NEAR THE SOUTHWEST CORNER OF PARCEL 1. ELEVATION = 60.41 FEET

REFERENCES:

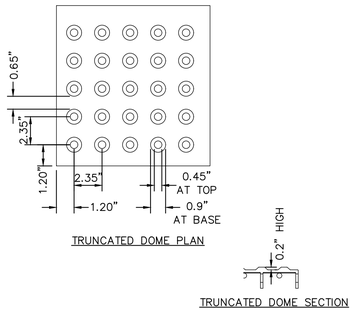
GP-

REV. NO.

SHEET 14 OF 18



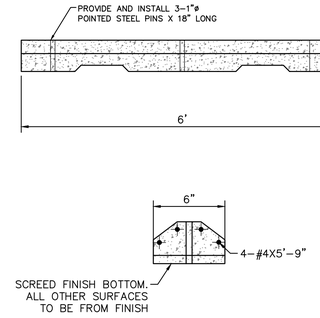
ACCESSIBLE PATH-OF-TRAVEL STRIPING — 14
N.T.S.



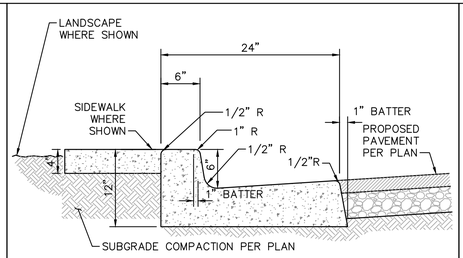
NOTES:

1. CONTRACTOR TO REFERENCE MANUFACTURERS GUIDELINES FOR INSTALLATION OF TRUNCATED DOMES.
2. COLOR TO BE YELLOW UNLESS NOTED OTHERWISE

TRUNCATED DOMES — 11
N.T.S.



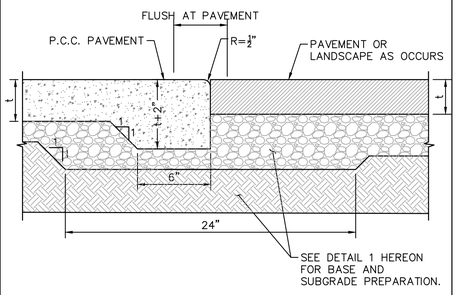
6' WIDE PRECAST WHEEL STOP — 8
N.T.S.



NOTES:

1. CONCRETE SHALL BE 2500 PSI.
2. ISOLATION JOINTS SHALL BE PLACED ONLY AS SPECIFIED
3. CONTRACTION JOINTS CONSISTING OF 1" DEEP SCORES SHALL BE PLACED AT 15' INTERVALS O.C.
4. WHERE A WALK IS ADJACENT TO THE CURB THE JOINTS SHALL ALIGN WITH JOINTS IN THE WALK.

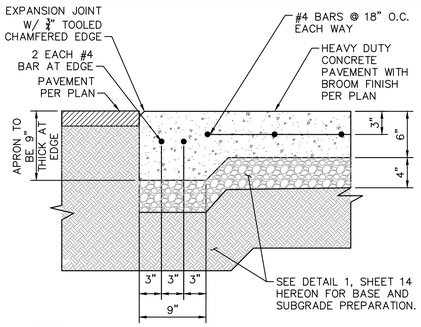
CONCRETE CURB & GUTTER — 5
N.T.S.



NOTES:

1. APPROVED BONDING AGENT SHALL BE APPLIED AT CONSTRUCTION JOINT.
2. SEE DETAIL 1 FOR PAVEMENT SECTION AND THICKNESS (t).
3. DETAIL APPLIES AT ALL SIDEWALK EDGE CONDITIONS AND PAVEMENT TRANSITIONS

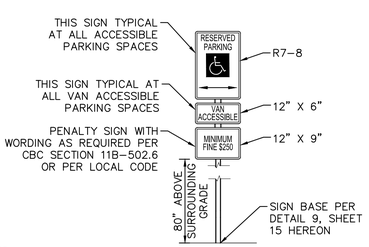
THICKENED EDGE — 2
N.T.S.



NOTES:

1. SEE DETAIL 1, SHEET 14 HEREON FOR ADDITIONAL INFORMATION.
2. ISOLATION JOINTS, CONSTRUCTION JOINTS, AND CONTROL JOINTS SHALL BE PLACED ONLY AS SPECIFIED

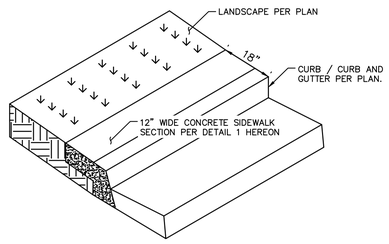
CONCRETE PAVEMENT AT DUMPSTER PAD — 13
N.T.S.



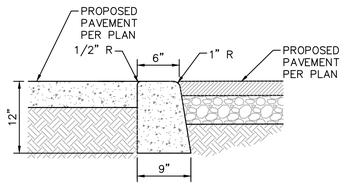
NOTES:

1. SIGNS SHALL CONFORM WITH THE MOST CURRENT CALIFORNIA MUTCD STANDARDS.
2. SIGNS SHALL BE WALL MOUNTED OR MOUNTED ON A POST PER DETAIL 6, SHEET 15.

ACCESSIBLE PARKING SIGN DETAIL — 10
N.T.S.



18" WALK-OFF CURB DETAIL — 7
N.T.S.



NOTES:

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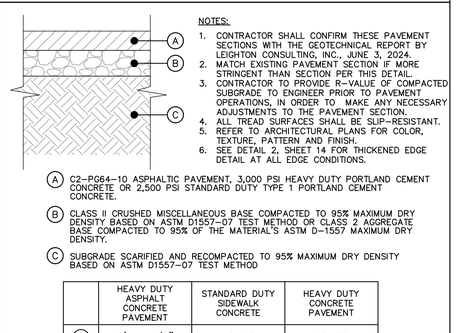
4. WHERE A WALK IS ADJACENT TO THE CURB THE JOINTS SHALL ALIGN WITH JOINTS IN THE WALK.

0" CONCRETE CURB — 4
N.T.S.



NOTES:

1. CONTRACTOR SHALL CONFIRM THESE PAVEMENT SECTIONS WITH THE GEOTECHNICAL REPORT BY LEIGHTON CONSULTING, INC., JUNE 3, 2024.
2. MATCH EXISTING PAVEMENT SECTION IF MORE STRINGENT THAN SECTION PER THIS DETAIL.
3. CONTRACTOR TO PROVIDE R-VALUE OF COMPACTED SUBGRADE TO ENGINEER PRIOR TO PAVEMENT OPERATIONS, IN ORDER TO MAKE ANY NECESSARY ADJUSTMENTS TO THE PAVEMENT SECTION.
4. ALL TREAD SURFACES SHALL BE SLIP-RESISTANT.
5. REFER TO ARCHITECTURAL PLANS FOR COLOR, TEXTURE, PATTERN AND FINISH.
6. SEE DETAIL 2, SHEET 14 FOR THICKENED EDGE DETAIL AT ALL EDGE CONDITIONS.

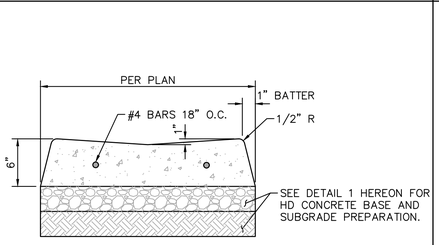
(A) C2-PG64-10 ASPHALTIC PAVEMENT, 3,000 PSI HEAVY DUTY PORTLAND CEMENT CONCRETE OR 2,500 PSI STANDARD DUTY TYPE 1 PORTLAND CEMENT CONCRETE.

(B) CLASS II CRUSHED MISCELLANEOUS BASE COMPACTED TO 95% MAXIMUM DRY DENSITY BASED ON ASTM D1557-07 TEST METHOD OR CLASS 2 AGGREGATE BASE COMPACTED TO 95% OF THE MATERIAL'S ASTM D-1557 MAXIMUM DRY DENSITY.

(C) SUBGRADE SCARIFIED AND RECOMPACTED TO 95% MAXIMUM DRY DENSITY BASED ON ASTM D1557-07 TEST METHOD

	HEAVY DUTY ASPHALT CONCRETE PAVEMENT	STANDARD DUTY SIDEWALK CONCRETE	HEAVY DUTY CONCRETE PAVEMENT
(A)	0'-4 1/2"	0'-4"	0'-6"
(B)	0'-5"	0'-0"	0'-4"
(C)	1'-0"	1'-0"	1'-0"

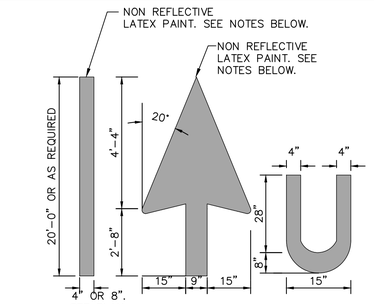
PAVEMENT SECTIONS — 1
N.T.S.



NOTE:

CONCRETE SHALL BE 3000 PSI.

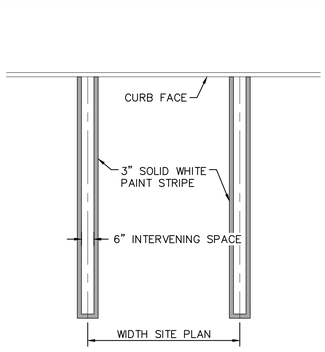
VALLEY GUTTER — 12
N.T.S.



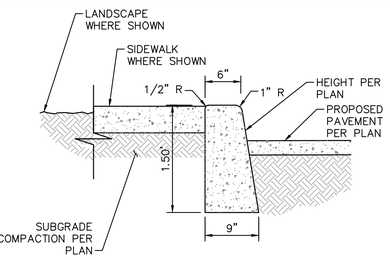
NOTE:

1. PAINT SHALL BE APPLIED AT A THICKNESS OF 22 WET MILS AND 15 DRY MILS.
2. PAVEMENT MARKINGS SHALL BE WHITE ON ASPHALT AND YELLOW ON ON CONCRETE, UNLESS STATED OTHERWISE.

TYPICAL PAVEMENT MARKINGS — 9
N.T.S.



STANDARD 90° PARKING STALL STRIPING — 6
N.T.S.



NOTES:

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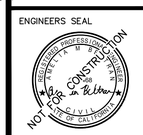
3. CONTRACTION JOINTS CONSISTING OF 1" DEEP SCORES SHALL BE PLACED AT 15' INTERVALS O.C.
4. WHERE A WALK IS ADJACENT TO THE CURB THE JOINTS SHALL ALIGN WITH JOINTS IN THE WALK.

CONCRETE CURB — 3
N.T.S.

ENGINEERS SEAL



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GRADING PLAN FOR MCDONALD'S 6201 LINCOLN AVENUE, BUENA PARK, CA 90602
CONSTRUCTION DETAILS

REVISIONS					CHECKED: AMELIA BELTRAN
NO.	DATE	BY	DESCRIPTION	APP:	RECOMMENDED:
					APPROVED:
					BENCHMARK: BASED ON NAVD 1988 DATUM, AND IS A SET MAG NAIL AND SHINER LOCATED NEAR THE SOUTHWEST CORNER OF PARCEL 1. ELEVATION = 60.41 FEET

REFERENCES:

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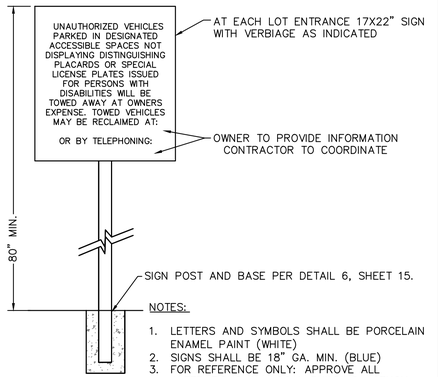
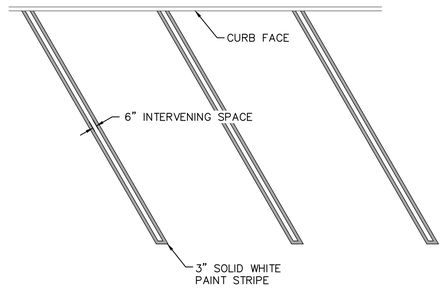
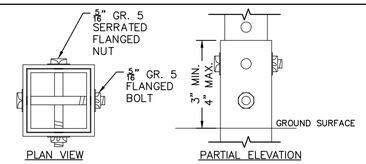
SHEET 15 OF 18



PARKING SIGN
N.T.S. 9



STANDARD 60° PARKING STALL STRIPING
N.T.S. 7



SQUARE TUBE BREAK AWAY POST

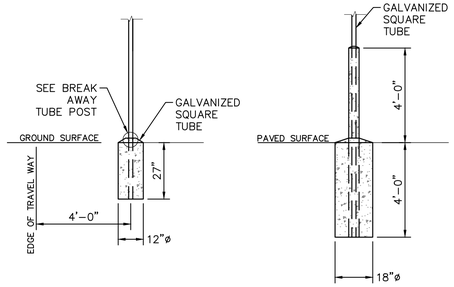
NOTES:

1. GALVANIZED SQUARE TUBE

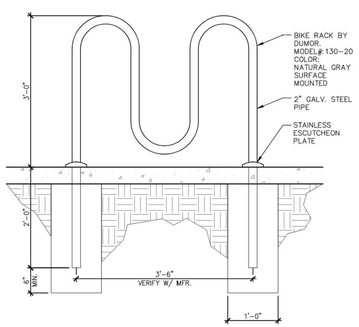
   POST TUBES – 2"x2"x3/16" 14ga
   POST TUBE SHALL MEET ASTM A1011 GRADE 50.
   POST TUBE GALVANIZED AS PER ASTM A653 GRADE 90.

   ANCHOR TUBE – 2-1/4"x2-1/4"x3/16" 14ga
   HEAVY DUTY ANCHOR TUBE SHALL MEET ASTM A500 GRADE B. STRUCTURAL TUBE AND STEEL SHALL BE HOT DIP GALVANIZED PER ASTM A123.

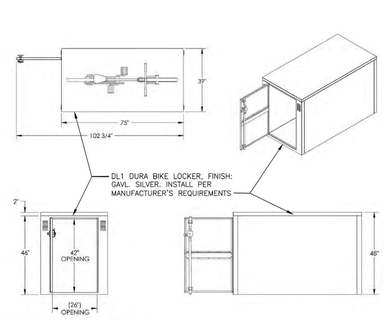
   THE UPPER SIGN POST SHALL TELESCOPE INSIDE THE ANCHOR TUBE A MINIMUM OF 12". THE ANCHOR TUBE SHALL BE A MINIMUM 27" DEEP WITH 3" MIN. 4" MAX. EXPOSED ABOVE FINISH GRADE.



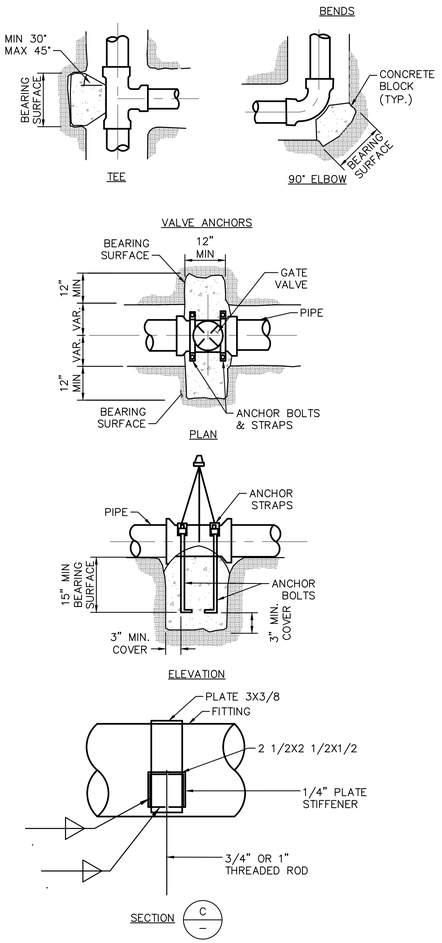
SIGN BASE DETAIL
N.T.S. 6



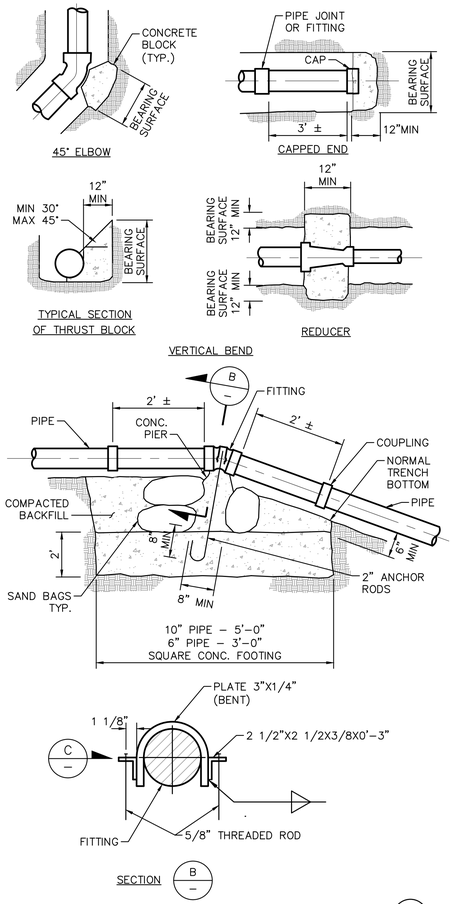
SHORT TERM BIKE RACK
N.T.S. 8



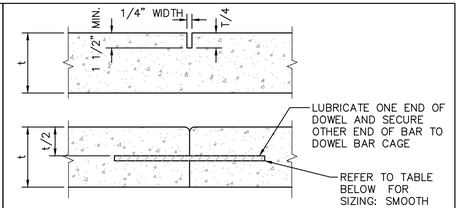
LONG TERM BIKE LOCKER
N.T.S. 5



MAIN SIZE	TEE *	BEND			
		90°	45°	22.5°	11.25 °
4"	4	4	4	3	2
6"	4	4	4	3	2
8"	5	7	4	3	2
10"	9	12	6	4	3
12"	12	16	9	6	3

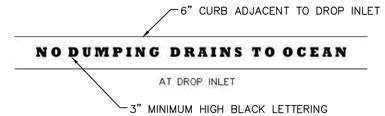


THRUST AND ANCHOR BLOCK DETAILS
N.T.S. 4

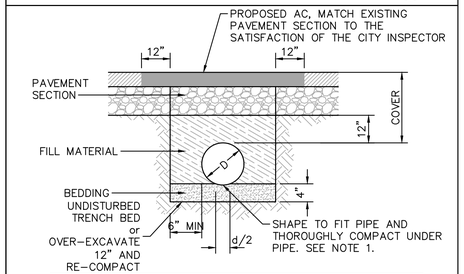


T	DOWEL DIAMETER	DOWEL EMBEDMENT	TOTAL DOWEL LENGTH
in. (mm)	in. (mm)	in. (mm)	in. (mm)
4.0 (102)	1/2 (13)	5 (125)	14 (360)
6.0 (150)	3/4 (20)	5 (125)	14 (360)
6.5 (165)	7/8 (22)	5 (125)	14 (360)
7.0 (180)	1 (25)	6 (150)	16 (400)
7.5 (190)	1-1/8 (28)	7 (180)	16 (400)
≥ 8.0 (200)	1-1/4 (32)	8 (200)	17 (430)

CONSTRUCTION AND CONTROL JOINT
N.T.S. 3



STENCIL DETAIL
N.T.S. 2



NOTES	
BEDDING:	CLEAN COARSE SAND
FILL MATERIAL:	NATIVE MATERIAL – MAXIMUM SIZE NOT TO EXCEED 1 1/2"
COVER:	36" MINIMUM, OR MINIMUM OF AGENCY HAVING JURISDICTION
NOTE 1:	EXCAVATE FOR BELLS OR HUBS SO FULL LOAD IS CARRIED BY PIPE BARRELS.
NOTE 2:	REFER TO SECTION 4 IN GEOTECHNICAL REPORT FOR BEDDING RECOMMENDATIONS

FLEXIBLE PIPE BEDDING AND TRENCH DETAIL
N.T.S. 1

ENGINEERS SEAL

NOT FOR CONSTRUCTION
Amelia Beltran
REGISTERED PROFESSIONAL ENGINEER
AMELIA BELTRAN
No. 87468
CIVIL
STATE OF CALIFORNIA

Kimley»Horn
180 EAST OCEAN BLVD, SUITE 1200
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PREPARED UNDER THE DIRECT SUPERVISION OF:
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AMELIA BELTRAN, R.C.E. NO. 87468 DATE: 10/17/2025 EXP. 09/30/2027

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NO.	DATE	BY	DESCRIPTION	APP:	RECOMMENDED:
					APPROVED:
					BENCHMARK: BASED ON NAVD 1988 DATUM, AND IS A SET MAG NAIL AND SHINER LOCATED NEAR THE SOUTHWEST CORNER OF PARCEL 1. ELEVATION = 60.41 FEET

REFERENCES:

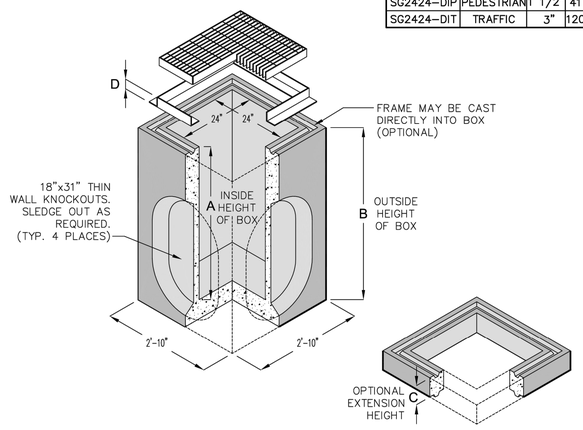
GP-

REV. NO.

DROP INLET			
MODEL NO.	A	B	*WEIGHT
DI242436	36"	42"	1900 LBS.
DI242448	48"	54"	2500 LBS.

*BOX ONLY

FRAME AND GRATE			
MODEL NO.	RATING	D	WEIGHT
SG2424-DIP	PEDESTRIAN	1 1/2"	41 LBS.
SG2424-DIT	TRAFFIC	3"	120 LBS.



EXTENSION		
MODEL NO.	C	WEIGHT
RS242406	6"	300 LBS.
RS242412	12"	600 LBS.

- FRAME AND GRATE ASSEMBLY AVALIABLE IN TRAFFIC OR PEDESTRIAN MODELS.
- DESIGN FOR H-20-44 BRIDGE LOADING.
- ASSEMBLY TO BE PLACED ON A 6" BASE OF CRUSHER RUN FOR EASE OF INSTALLATION AND EVEN LOAD DISTRIBUTION.
- FOR COMPLETE DESIGN AND PRODUCT INFORMATION, CONTACT JENSEN PRECAST.
- ILLUSTRATION IS TYPICAL ONLY OF GENERAL SERIES CONFIGURATION: FOR SPECIFIC CONFIGURATION, CALL JENSEN PRECAST.

24" X 24" DRAIN INLET

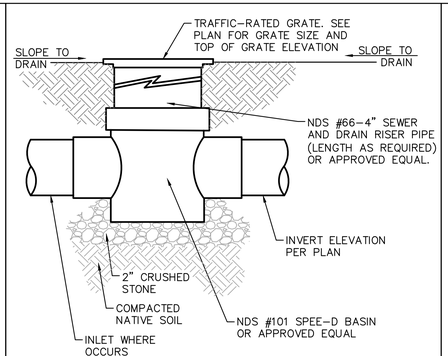
JENSEN PRECAST

DWG. DWG. DATE: 11-28-00 | REV. DWG. DATE:

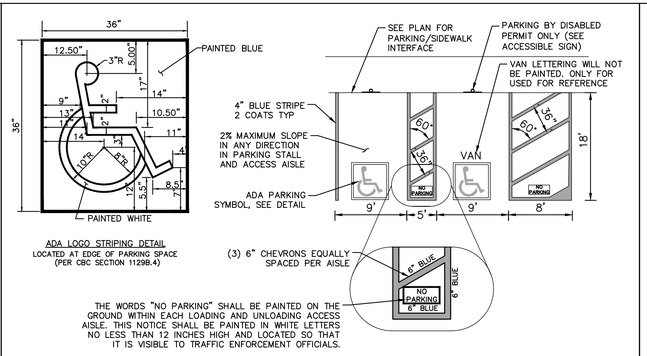
DI2424

8.01

24" X 24" DRAIN INLET
N.T.S. 8



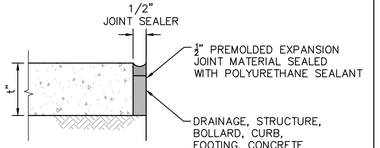
NDS AREA DRAIN
N.T.S. 6



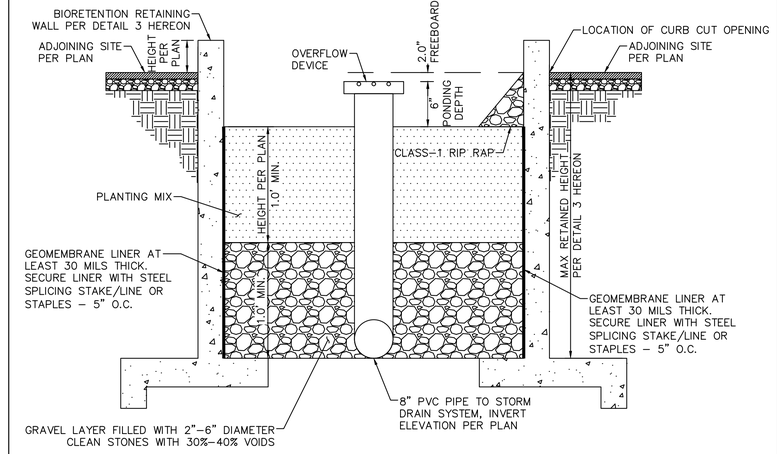
ADA LOGO STRIPING DETAIL
LOCATED AT EDGE OF PARKING SPACE (PER CBC SECTION 1129B.4)

THE WORDS "NO PARKING" SHALL BE PAINTED ON THE GROUND WITHIN EACH LOADING AND UNLOADING ACCESS AISLE. THIS NOTICE SHALL BE PAINTED IN WHITE LETTERS NO LESS THAN 12 INCHES HIGH AND LOCATED SO THAT IT IS VISIBLE TO TRAFFIC ENFORCEMENT OFFICIALS.

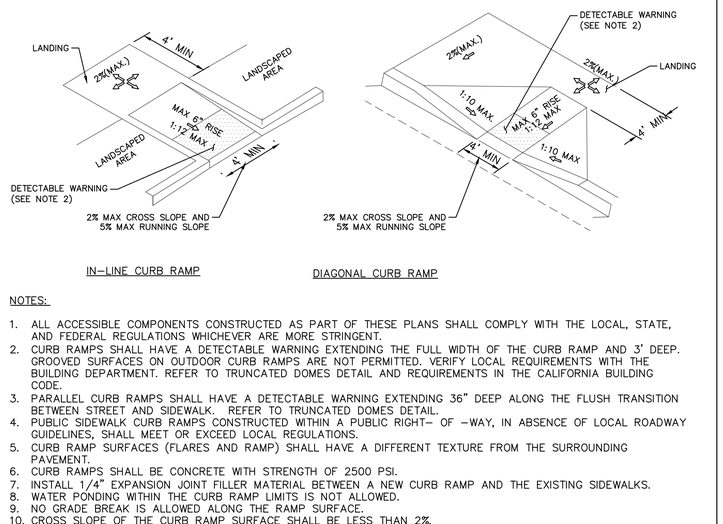
ACCESSIBLE PARKING STALL STRIPING
N.T.S. 5



ISOLATION JOINT @ STRUCTURE
N.T.S. 2



BIORETENTION AREA WITHOUT UNDERDRAIN DETAIL
N.T.S. 4



IN-LINE CURB RAMP

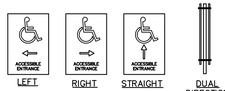
DIAGONAL CURB RAMP

NOTES:

1. ALL ACCESSIBLE COMPONENTS CONSTRUCTED AS PART OF THESE PLANS SHALL COMPLY WITH THE LOCAL, STATE, AND FEDERAL REGULATIONS WHICHEVER ARE MORE STRINGENT.
2. CURB RAMPS SHALL HAVE A DETECTABLE WARNING EXTENDING THE FULL WIDTH OF THE CURB RAMP AND 3' DEEP. GROOVED SURFACES ON OUTDOOR CURB RAMPS ARE NOT PERMITTED. VERIFY LOCAL REQUIREMENTS WITH THE BUILDING DEPARTMENT. REFER TO TRUNCATED DOMES DETAIL AND REQUIREMENTS IN THE CALIFORNIA BUILDING CODE.
3. PARALLEL CURB RAMPS SHALL HAVE A DETECTABLE WARNING EXTENDING 36" DEEP ALONG THE FLUSH TRANSITION BETWEEN STREET AND SIDEWALK. REFER TO TRUNCATED DOMES DETAIL.
4. PUBLIC SIDEWALK CURB RAMPS CONSTRUCTED WITHIN A PUBLIC RIGHT- OF -WAY, IN ABSENCE OF LOCAL ROADWAY GUIDELINES, SHALL MEET OR EXCEED LOCAL REGULATIONS.
5. CURB RAMP SURFACES (FLARES AND RAMP) SHALL HAVE A DIFFERENT TEXTURE FROM THE SURROUNDING PAVEMENT.
6. CURB RAMPS SHALL BE CONCRETE WITH STRENGTH OF 2500 PSI.
7. INSTALL 1/4" EXPANSION JOINT FILLER MATERIAL BETWEEN A NEW CURB RAMP AND THE EXISTING SIDEWALKS.
8. WATER PONDING WITHIN THE CURB RAMP LIMITS IS NOT ALLOWED.
9. NO GRADE BREAK IS ALLOWED ALONG THE RAMP SURFACE.
10. CROSS SLOPE OF THE CURB RAMP SURFACE SHALL BE LESS THAN 2%.
11. TRANSITION CHANGE IN ELEVATION IS NOT TO EXCEED 1/2" WITHIN AN ACCESSIBLE ROUTE.

ACCESSIBLE RAMP DETAILS
N.T.S. 1

NOTE:
ALL ADA SIGNAGE TO BE FURNISHED AND INSTALLED BY SIGNAGE VENDOR.



LEFT RIGHT STRAIGHT DUAL DIRECTION

USE APPROPRIATE ARROWS TO INDICATE ACCESSIBLE PATH OF TRAVEL. USE WWW.COMPLIANCESIGNS.COM MODEL NUMBERS PKE-18498, PKE-18500, AND PKE-18501 OR APPROVED EQUAL.

NOTE: WHITE (REFLECTORIZED) SYMBOLS & BLUE BACKGROUND

NOTE: SIGNS SHALL BE MOUNTED SO THEY DO NOT PROJECT PATH OF TRAVEL. IF THE SIGN PROJECTS INTO PATH OF TRAVEL, THE SIGN SHALL BE MOUNTED W/ BOTTOM EDGE AT 80" MIN ABOVE THE GROUND SURFACE. SIGN BASE PER DETAIL 6, SHEET 15 HEREON.

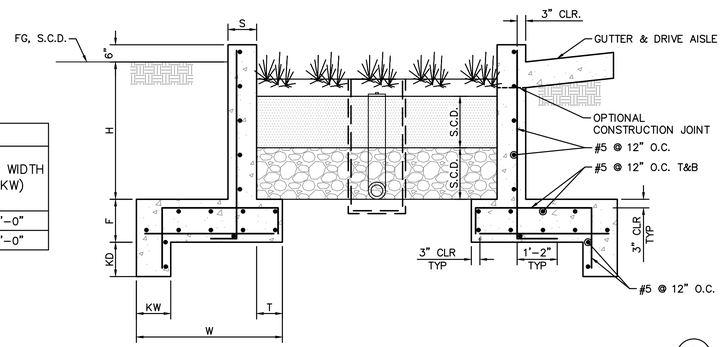
FOR REFERENCE ONLY: APPROVE ALL ALTERATIONS W/ LOCAL BUILDING AGENCY.

NOTES:

1. SIGNS SHALL MOUNTED ON A POST PER DETAIL 6, SHEET 15.

ACCESSIBLE PATH OF TRAVEL SIGN
N.T.S. 7

BIORETENTION WALL DIMENSIONS							
IDENTIFICATION	MAX RETAINED HEIGHT (H)	STEM THICKNESS (S)	FOOTING THICKNESS (F)	FOOTING WIDTH (W)	TOE LENGTH (T)	KEY DEPTH (KD)	KEY WIDTH (KW)
BIORETENTION A	4'-0"	8"	1'-3"	4'-0"	0'-9"	1'-0"	1'-0"
BIORETENTION B	5'-6"	10"	1'-3"	5'-3"	1'-3"	1'-4"	1'-0"



STRUCTURAL BIORETENTION RETAINING WALLS
N.T.S. 3

ENGINEERS SEAL

NOT FOR CONSTRUCTION

Kimley»Horn

180 EAST OCEAN BLVD, SUITE 1200
LONG BEACH, CA 90802
(562) 549-2200

PREPARED UNDER THE DIRECT SUPERVISION OF:
Amelia Beltran
DATE: 10/17/2025
AMELIA BELTRAN, R.C.E. NO. 87468 EXP. 09/30/2027

811 Know what's below. Call before you dig.

GRADING PLAN FOR MCDONALD'S 6201 LINCOLN AVENUE, BUENA PARK, CA 90602
CONSTRUCTION DETAILS

REVISIONS					CHECKED: AMELIA BELTRAN
NO.	DATE	BY	DESCRIPTION	APP:	RECOMMENDED:
					APPROVED:
					BENCHMARK: BASED ON NAVD 1988 DATUM, AND IS A SET MAG NAIL AND SHINER LOCATED NEAR THE SOUTHWEST CORNER OF PARCEL 1. ELEVATION = 60.41 FEET

REFERENCES:

GP- REV. NO.

SHEET 17 OF 18

PACKAGED STORM PUMP LIFT STATION

MCDONALDS - 6201 LINCOLN AVENUE, BUENA PARK

Furnish and install complete pre-packaged duplex Lift Station model **#PSI-KIM071025** as manufactured by Pacific Southwest Industries (national phone # 800-358-9095)

This pre-packaged Lift Station shall incorporate a quick removal system manufactured by the pump manufacturer. The pump(s) shall be guided to the discharge base elbow by a single or double guide rail and shall be stainless steel and shall extend from the discharge base elbow to the upper guide bracket mounted on 1-5/8" x 1-5/8" channel strut just below the basin cover. Stainless steel lifting chain or cable shall be supplied and properly installed to remove the pump from the wet well. The internal discharge piping shall be completely pre-plumbed with pressure rated schedule 40 or 80 PVC pipe as indicated and extend 12" beyond the wet well and valve vault side wall for contractor connection to the force main piping. The pump(s) discharge piping shall have a check and ball valve installed on each pump discharge. The Lift Station shall include control panel and level control floats. The control panel shall be suitable for surface mounting or free standing on a leg kit if the site conditions require it.

PUMP(S):

Furnish and install Liberty series LE submersible pump(s). Each unit shall be capable of handling residential sewage with 2" solid handling capability. The submersible pumps shall produce the proper head and flow as indicated in this detail. The pump(s) shall be designed so that the shaft power required (BHP) shall not exceed the motor rated output throughout the entire operating range of the pump performance curve. A two-year warranty "out of the box" shall be standard.

CONSTRUCTION:

Each centrifugal sewage pump shall be the certified Series LE SERIES pumps as manufactured by Liberty Pumps, Bergen NY. The castings shall be constructed of class 25 cast iron. The motor housing shall be oil filled to dissipate heat. Air filled motors shall not be considered equal since they do not properly dissipate heat from the motor. All mating parts shall be machined and sealed with a Buna-N O-ring. All fasteners exposed to the liquid shall be stainless steel. The motor shall be protected on the top side with sealed cord entry plate with molded pins to conduct electricity eliminating the ability of water to enter internally through the cord. The motor shall be protected on the lower side with a unitized ceramic/carbon seal with stainless steel housings and spring. The upper and lower bearing shall be capable of handling all radial and thrust loads. The pump shall be furnished with stainless steel handle.

ELECTRICAL POWER CORD:

The submersible pump shall be supplied with 35 feet of multi-conductor power cord. It shall be cord type SJTW (1-PH), capable of continued exposure to the pumped liquid. The power cord shall be sized for the rated full load amps of the pump in accordance with the National Electric Code. The power cable shall not enter the motor housing directly but will conduct electricity to the motor by means of a water tight compression fitting cord plate assembly, with molded pins to conduct electricity. This will eliminate the ability of water to enter internally through the cord, by means of a damaged or wicking cord.

MOTORS:

Single phase motors shall be oil filled, permanent split capacitor, and class B insulated NEMA B design rated for continuous duty. Three phase motors shall be oil filled; class B insulated NEMA B design, rated for continuous duty. At maximum load the winding temperature shall not exceed 130 degrees C unsubmerged. Since air filled motors are not capable of dissipating heat, they shall not be considered equal. Single phase pump motors shall have an integral thermal overload switch in the windings for protecting the motor. Three phase motors shall be used with an appropriate controller with integral overload protection. The capacitor circuit shall be mounted internally in the pump on single phase units.

BEARINGS AND SHAFT:

Upper and lower ball bearings shall be required. The bearings shall be a single ball / race type bearing. Both bearings shall be permanently lubricated by the oil, which fills the motor housing. The motor shaft shall be made of 300 or 400 series stainless steel and have a minimum diameter of .50".

SEALS:

The pump shall have a unitized carbon / ceramic seal with stainless steel housings and spring equal to Crane Type 6A. The motor plate / housing interface shall be sealed with a Buna-N O-ring.

IMPELLER:

The impeller shall be a class 25 iron, with pump out vanes on the back shroud to keep debris away from the seal area. It shall be threaded to the motor shaft.

QUICK REMOVAL SYSTEM:

The pumping unit(s) shall be equipped with quick removal system (QRS). The construction shall be such that the pump(s) will automatically connect to the discharge piping when lowered into place on the discharge connector. There shall be no need for personnel to enter the wet well to accomplish installation or removal of the pump(s). The pumping unit(s) shall be fitted with stainless steel lifting chain(s) of sufficient length and strength to permit the raising and lowering of the unit(s). The chain(s) shall be fastened at the top of the structure near the access opening. The need for a protective coating shall not be required. A sliding guide bracket shall be an integral part of the pumping unit and the pump casing shall have a machined connection with a bracket to connect with the discharge connection. Sealing of the pumping unit to the discharge connection shall be accomplished by a single linear downward motion of the pump with the entire weight of the pumping unit guided by a pawl, thereby wedging the pumping unit tightly against the discharge connector. No portion of the pump shall bear directly on the floor of the sump nor shall a rotary motion of the pump be required for sealing. All fasteners coming into contact with the pumpage shall be stainless steel. Two corrosion resistant guide pipes shall be furnished and installed for each pump to permit raising and lowering of the pump.

FIBERGLASS WET WELL:

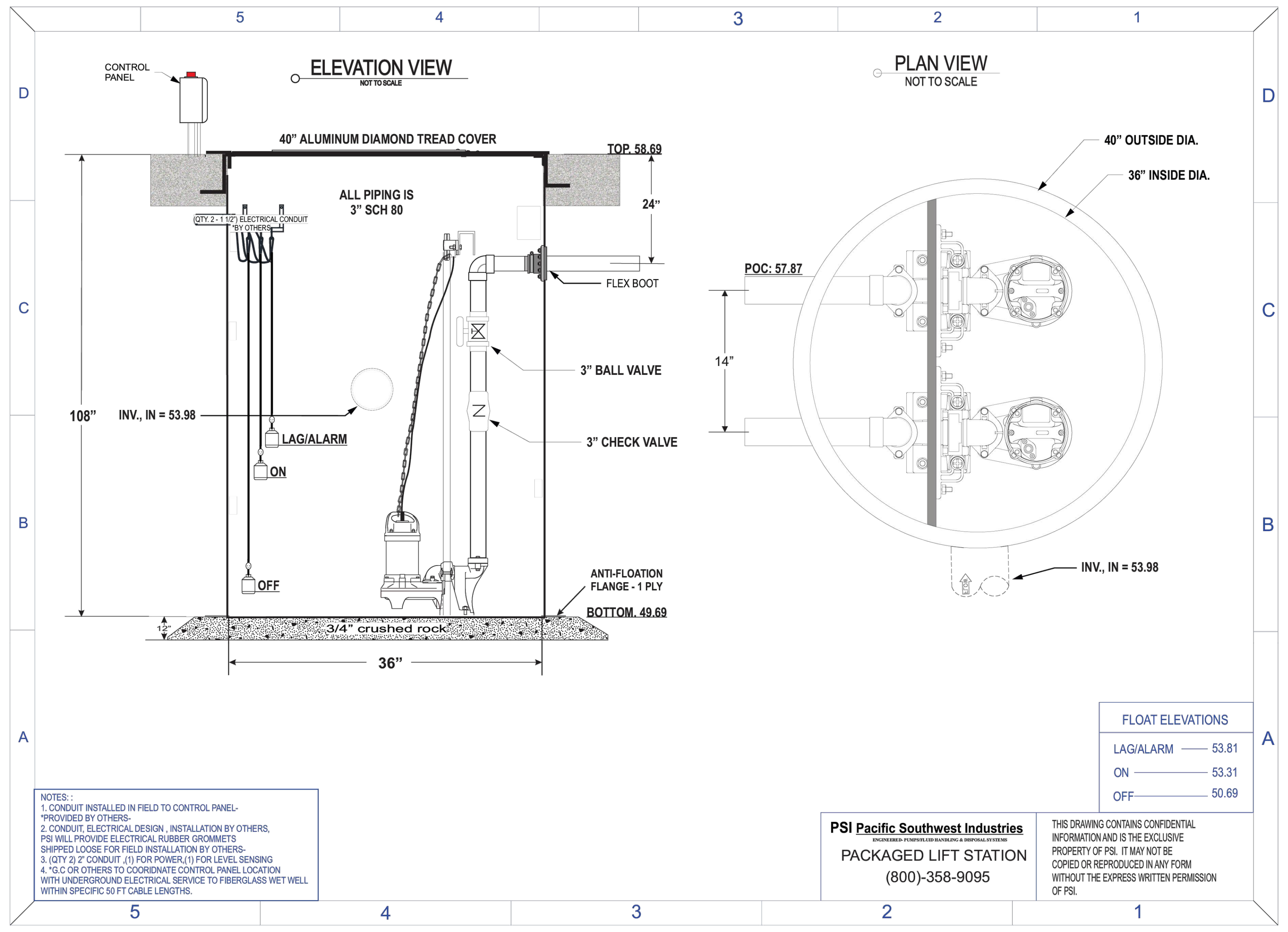
The fiberglass wet well with an anti-flotation flange shall have the proper diameter and depth below the lowest inlet to promote proper cycling while maintaining the rim at grade. The fiberglass wet well shall be manufactured using a process that is filament wound and or chopped spray. The wet well shall be constructed with a anti flotation flange. Lifting lugs shall be required for those wet wells 48 inches in diameter and larger for setting of the wet well. The laminate shall have a Barco hardness of at least 90% of the resin manufactures minimum specified hardness for cured resin on both the interior and exterior surfaces. The minimum wall thickness of the wet well shall not be less than 1/4". Stainless steel studs will be encapsulated in the bottom of the wet well to allow the mounting of the quick removal system. The top rim flange will be a minimum of 2" wide to allow for the installation of the pedestrian rated aluminum cover to the rim flange or shall be rimless if the cover is specified for H20 off street locations. The wet well shall be provided with "unseal" fittings that can be installed in the field to insure proper elevation of the inlet, vent, and electrical on the side of the wet well. The wet well will house 2 - swing check valves, and 2 – shut off valves.

COVER(s)

The wet well cover shall always be gasketed and bolted to the rim flange of the fiber glass tank using 7/16" stainless steel hex head bolts unless the cover is to be in a H20 off street location. The type of material to be used for the cover shall be as indicated on this plan sheet.

DUPLEX ALTERNATING CONTROL PANEL:

The duplex control panel, as a minimum, shall include the appropriate enclosure type for the environment it is to be installed in and should include the following: Motor starters, motor circuit protectors or variable frequency drives (VFD), pump run indicator(s), operation selector switch(es), high water alarm and light, silence switch, dry contact for alarm, numbered terminals for all incoming power, pump motor(s) and level controls. The control panel shall be UL listed 508 or 913.



LIFT STATION PUMP SYSTEM

NOTE: VERIFY ALL ELEVATIONS PRIOR TO FABRICATION. OTHERS TO VERIFY ALL INLET/OUTLET ORIENTATIONS PRIOR TO FABRICATION AND INSTALLATION. *ALL PIPE OPENINGS AND SEALING SHALL BE COMPLETED IN FIELD BY OTHERS.

PSI Pacific Southwest Industries
ENGINEERED- PUMPS/FLUID HANDLING & DISPOSAL SYSTEMS
18541 COLLIER AVE., LAKE ELSINORE, CA 92530 PH: 800 358-9095

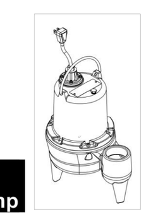
No.	Date	Description

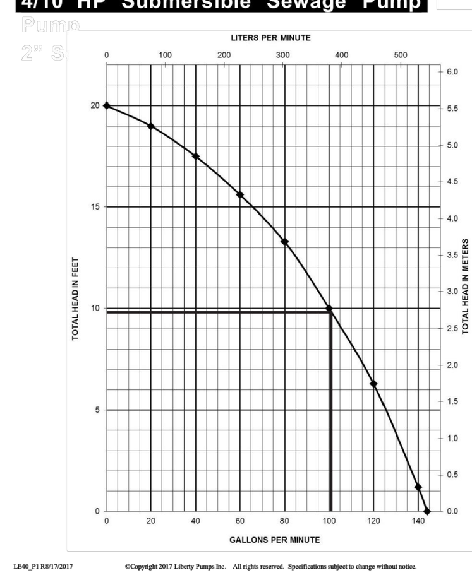
LIFT STATION DETAILS
MCDONALDS
6201 LINCOLN AVENUE, BUENA PARK

Date:	07/10/25	Scale: NTS
Drawn by:	DM	Sheet No.
Checked by:		1 OF 1

LSD-1

Liberty Pumps
Pump Specifications
LE40 Series
4/10 HP Submersible Sewage Pump



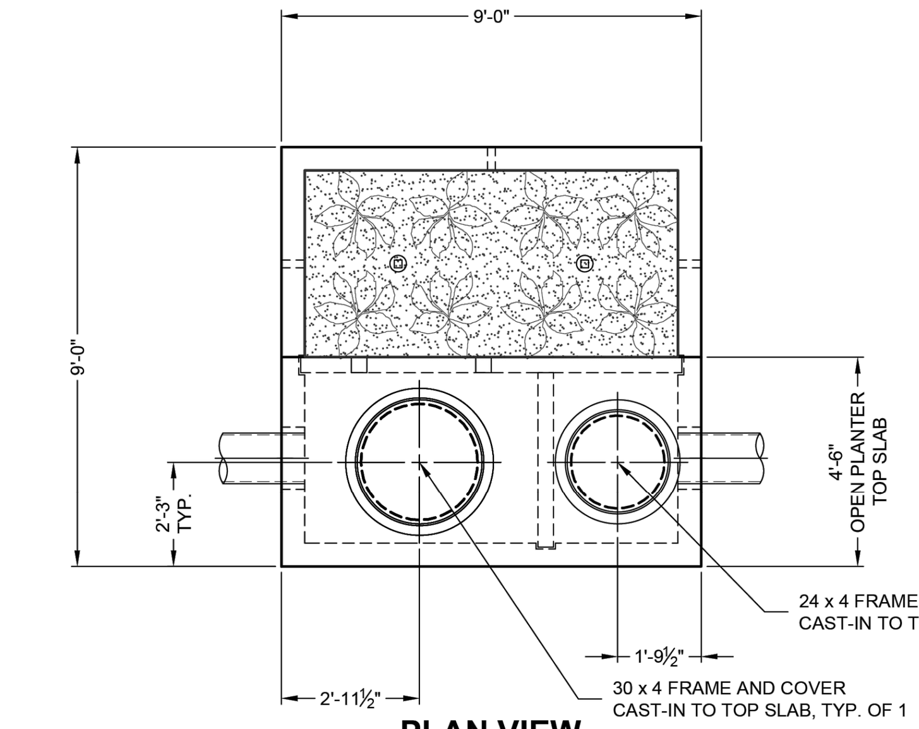


HAZEN-WILLIAMS EQUATION/HEAD LOSS IN WATER PIPE	
$(f) = 0.2083\,(100 / c)^{1.852}\, q^{1.852} / dh^{4.8655}$	
c=	150 HDPE / PVC
q=	101 GPM
dh=	3" SCH 80 = 2.90
FRICTION LOSS PER 100 FT f=	2.85
Velocity (ft/s) =	4.91

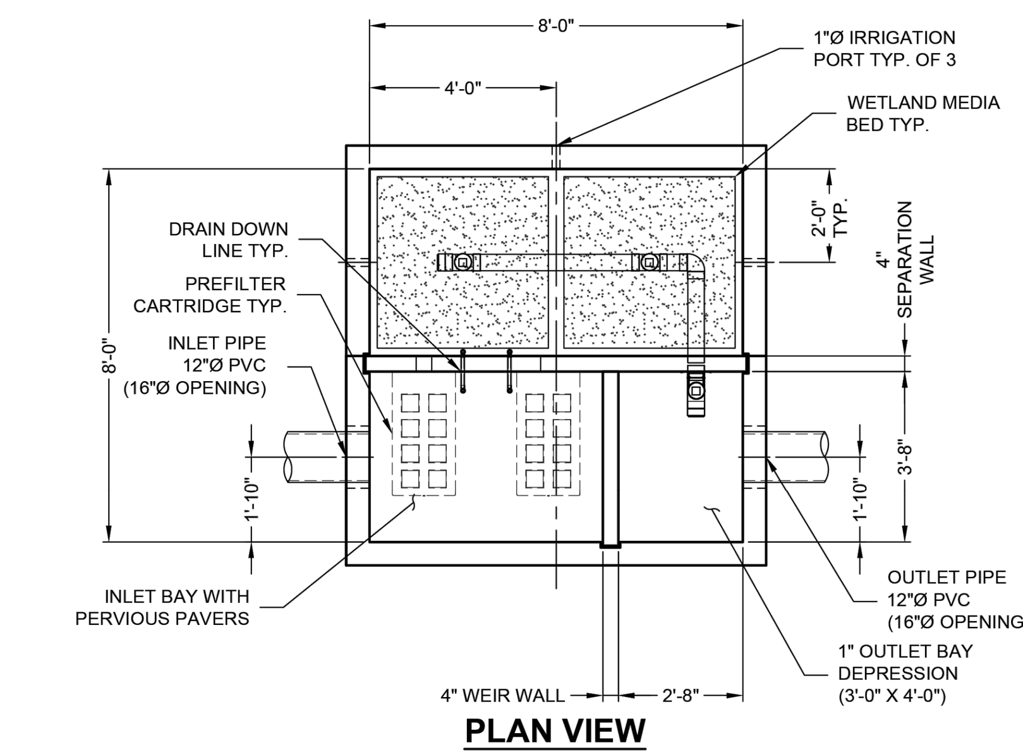
LIFT STATION PROFILE & CALCULATIONS					
3" SCH 40 = 3.048 SCH 80 = 2.90					
3" PVC PIPE	(QTY)	20	x	1 FT	20 FT
3" PVC 90 ELBOW	(QTY)	1	x	7.7 FT	7.7 FT
3" PVC 45 BEND	(QTY)	0	x	4.1 FT	0 FT
3" PVC TEE	(QTY)	0	x	16.4 FT	0 FT
3" BALL VALVE	(QTY)	1	x	2 FT	2 FT
3" CHECK VALVE	(QTY)	1	x	20 FT	20 FT
TOTAL EQUIVALENT LENGTH					49.7 FT
FRICTION LOSS PER 100 FT 3" PVC	101 GPM	2.8 FT		PER 100 FT	
FRICTION LOSS 3"	49.7	/	100 x	2.8 FT	1.42 FT
TOTAL DYNAMIC HEAD					
3" FRICTION LOSS					1.42 FT
STATIC HEAD				+	8.18 FT
PERFORMANCE	101 GPM @	9.60	FT TDH THROUGH 3" PVC LINE		

SUMP PUMP
N.T.S.
3

THIS DOCUMENT IS FOR INFORMATIONAL PURPOSES ONLY AND IS NOT A FINAL CONSTRUCTION CONTRACT



PLAN VIEW



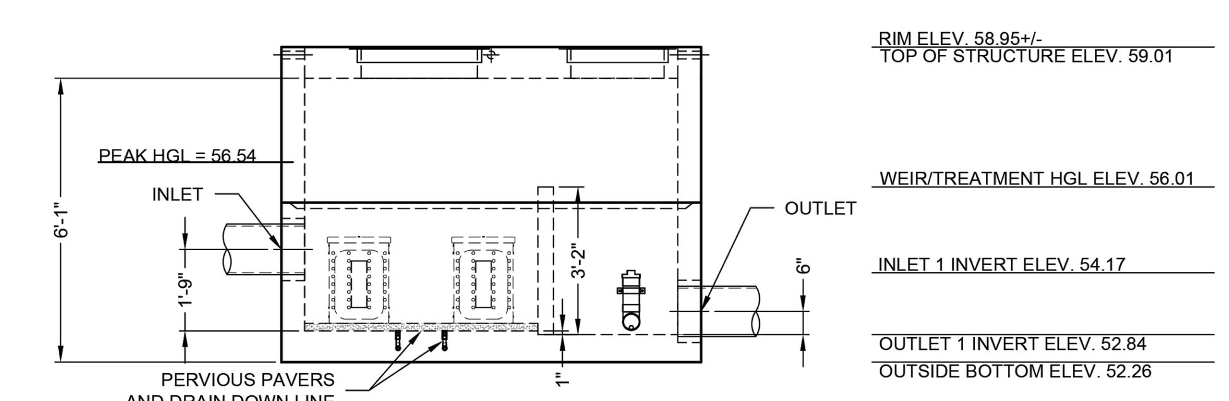
PLAN VIEW
TOP SLAB NOT SHOWN

SITE DESIGN DATA	
WATER QUALITY FLOW (CFS)	0.20
PEAK FLOW RATE (CFS)	4.73
RETURN PERIOD (YRS)	10
MAXIMUM POLLUTANT DENSITY (PREFILTER) (GPM/SF)	2.1
PREFILTER LOADING RATE (GPM/SF)	1.75
WETLAND MEDIA LOADING RATE (GPM/SF)	1.00
MEDIA OPERATING HEAD (FT)	2.94
SURFACE LOADING	PEDESTRIAN
GROUNDWATER ELEVATION*	52.84

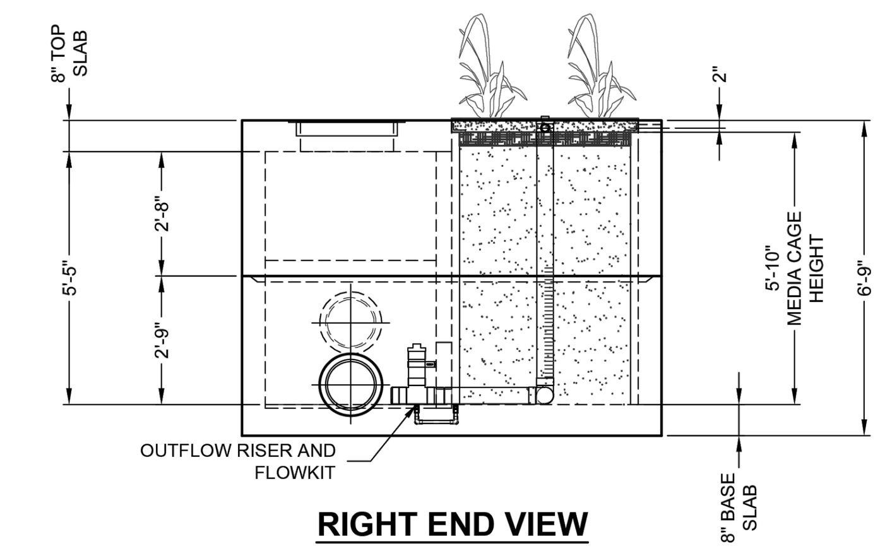
*GROUNDWATER ELEVATION IS ASSUMED. EOR TO PROVIDE IF KNOWN

STRUCTURE DETAILS	
NUMBER OF DELIVERED PIECES (COMPLETEY ASSEMBLED - RISERS TO GRADE NOT NEEDED)	1
MAXIMUM FOOTPRINT	9.00' x 9.00'
DELIVERED HEAVIEST PICK*	18825 LB.
TOP SECTION WITH CASTING FRAMES CAST-IN	11750 LB.
BASE SECTION	15250 LB.
SEPARATION WALL	2200 LB.
WEIR WALL	600 LB.
INTERNAL COMPONENTS	775 LB.

* HEAVY PICK WEIGHT IS COMPRISED OF ALL PIECES COMPLETELY ASSEMBLED



ELEVATION VIEW*



RIGHT END VIEW

*MEDIA CASTINGS, IF REQUIRED, NOT SHOWN

RVRSD
6505 / 000000
LAYOUT 4
MWS-L-8-8-L
12.37 TS
1.35 TIW

\\QUIKRETE.NET\CONTECH\MERLIN\PROJECT\ACTIVE\838700\838736\838736-10-MODULAR WETLANDS\DRAWINGS\838736-10-MWSL0808OP-CONFAB.DWG 10/7/2025 11:38 AM

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MARK	DATE	REVISION DESCRIPTION	BY

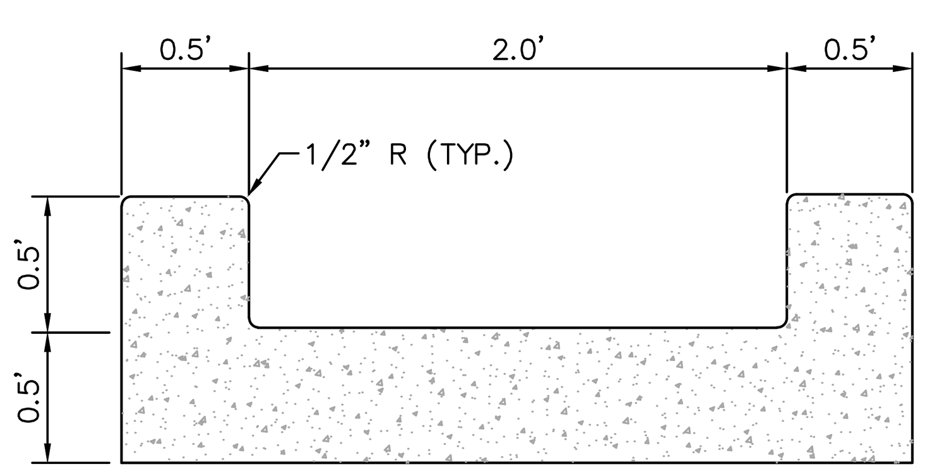
CONTECH ENGINEERED SOLUTIONS
A QUIKRETE® COMPANY
12901 SE 97th Avenue, Clackamas, OR 97015
800-548-4667 503-240-3393 800-561-1271 FAX

MODULAR WETLANDS
FOR PATENT INFORMATION, GO TO www.ContechES.com/IP
CONTECH PROPOSAL DRAWING

MODULAR WETLANDS MWSL0808OP - 838736-010
MCDONALDS BUENA PARK
BUENA PARK, CA
SITE DESIGNATION: MWSL0808

PROJECT No.: 838736	SEQ. No.: 010	DATE: 10/07/25
DESIGNED: JTEN		DRAWN: JP
CHECKED: JTEN		APPROVED: JTEN
SHEET NO.: 1 OF 1		

MODULAR WETLAND SYSTEM
N.T.S.
1

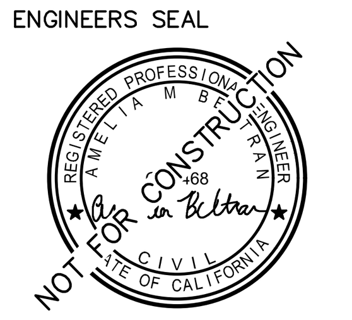


NOTES:

1. CONCRETE SHALL BE 2500 PSI.
2. ISOLATION JOINTS SHALL BE PLACED ONLY AS SPECIFIED
3. CONTRACTION JOINTS CONSISTING OF 1" DEEP SCORES SHALL BE PLACED AT 15' INTERVALS O.C.
4. EXPANSION JOINTS REQUIRED AT ALL LOCATIONS WHERE CHANNEL MEETS CURB.

CONCRETE CHANNEL GUTTER
N.T.S.
2

ENGINEERS SEAL



Kimley»Horn
180 EAST OCEAN BLVD, SUITE 1200
LONG BEACH, CA 90802
(562) 549-2200

PREPARED UNDER THE DIRECT SUPERVISION OF:
AMELIA BELTRAN, R.C.E. NO. 87468 DATE: 10/17/2025
EXP. 09/30/2027

811 Know what's **below.** **Call** before you dig.

GRADING PLAN FOR MCDONALD'S 6201 LINCOLN AVENUE, BUENA PARK, CA 90602
CONSTRUCTION DETAILS

REVISIONS				
NO.	DATE	BY	DESCRIPTION	APP:

CHECKED: AMELIA BELTRAN
RECOMMENDED:
APPROVED:
BENCHMARK: BASED ON NAVD 1988 DATUM, AND IS A SET MAG NAIL AND SHINER LOCATED NEAR THE SOUTHWEST CORNER OF PARCEL 1. ELEVATION = 60.41 FEET

REFERENCES:

GP- REV. NO.

Attachment D: County Maps

SUBJECT TO FURTHER REVISION

PROJECT LOCATION

LOS ANGELES COUNTY
ORANGE COUNTY
SAN BERNARDINO COUNTY
RIVERSIDE COUNTY

0.9
0.95
0.7
0.75
0.8
0.85
1
1.05

LEGEND

- Orange County Precipitation Stations
- 24 Hour, 85th Percentile Rainfall (Inches)
- 24 Hour, 85th Percentile Rainfall (Inches) - Extrapolated
- City Boundaries

Rainfall Zones

Design Capture Storm Depth (inches)

- 0.65"
- 0.7
- 0.75
- 0.80
- 0.85
- 0.90
- 0.95
- 1.00
- 1.10"

Note: Events defined as 24-hour periods (calendar days) with greater than 0.1 inches of rainfall.
For areas outside of available data coverage, professional judgment shall be applied.

0 3 6 12 Kilometers
0 1.8 3.6 7.2 Miles

P:\9526E\16-GIS\Mxds\Reports\InfiltrationFeasability_20110215\9526E_FigureXVI-1_RainfallZones_20110215.mxd

TITLE: RAINFALL ZONES

JOB: ORANGE COUNTY TECHNICAL GUIDANCE DOCUMENT — ORANGE CO. CA

SCALE	1" = 1.8 miles
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	04/22/10
JOB NO.	9526-E

PACE Advanced Water Engineering

FIGURE XVI-1

SUBJECT TO FURTHER REVISION

PROJECT LOCATION

LOS ANGELES COUNTY
ORANGE COUNTY

SAN BERNARDINO COUNTY
ORANGE COUNTY

RIVERSIDE COUNTY
ORANGE COUNTY

LEGEND

City Boundaries

OCWD Groundwater Basin Protection Boundary

Depth To Groundwater

<= 5'

5-10'

Note: Data are not available for South Orange County at this time.

Source:
Sprotte, Fuller and Greenwood, 1980.
California Division of Mines and Geology;
California Geological Survey

0 2 4 8 Kilometers

0 1.25 2.5 5 Miles

TITLE

NORTH ORANGE COUNTY
MAPPED SHALLOW GROUNDWATER

ORANGE COUNTY
INFILTRATION STUDY

JOB ORANGE CO. CA

SCALE	1" = 1.25 miles
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	02/09/11
JOB NO.	9526-E

PACE
Advanced Water Engineering

FIGURE

XVI-2e

P:\9526E\6-GIS\Mxds\Reports\InfiltrationFeasability_20110215\9526E_FigureXVI-2e_DepthToGroundwater15ft_20110215.mxd

Attachment E: Groundwater Feasibility

SUBJECT TO FURTHER REVISION

LEGEND

- Depth To First Groundwater Contours
- City Boundaries
- OCWD Groundwater Basin Protection Boundary

Note: Data are not available for South Orange County at this time.

Source:
Sprotte, Fuller and Greenwood, 1980.
California Division of Mines and Geology;
California Geological Survey

PROJECT LOCATION

LOS ANGELES COUNTY
ORANGE COUNTY

SAN BERNARDINO COUNTY
ORANGE COUNTY

RIVERSIDE COUNTY
ORANGE COUNTY

Pacific Ocean

0 2 4 8 Kilometers
0 1.25 2.5 5 Miles

TITLE
NORTH ORANGE COUNTY
MAPPED DEPTH TO FIRST
GROUNDWATER

JOB
ORANGE CO.
ORANGE COUNTY
INFILTRATION STUDY
CA

SCALE	1" = 1.25 miles
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	02/09/11
JOB NO.	9526-E

PACE
Advanced Water Engineering

FIGURE
XVI-2d

P:\9526E\6-GIS\Mxds\Reports\InfiltrationFeasability_20110215\9526E_FigureXVI-2d_DepthToGroundwaterOverview_20110215.mxd

Attachment F: Hydromodification

Susceptibility

Potential Areas of Erosion, Habitat, & Physical Structure Susceptibility

Channel Type

- Earth (Unstable)
- Earth (Stabilized)
- Stabilized

Tidel Influence

- <= Mean High Water Line (4.28')

Water Body

- Basin
- Lake
- Reservoir

Other Lands

- Airport/Military

Los Angeles County

PROJECT LOCATION

Channel in Retarding Basin

Humble Reservoir

Orange County

Valencia Reservoir

Fullerton Reservoir

Loftus Diversion Channel Desilting Basin

Brea Creek Reservoir

Fullerton Reservoir

Fullerton Reservoir

Hillcrest Park Reservoir

Fullerton Airport

Fullerton

Placentia Retarding Basin

La Jolla Recharge Basin

Miller Retarding Basin

Kraemer Basin

Raymond Retarding Basin

Gilbert Retarding Basin

Crescent Retarding Basin

Cypress Retarding Basin

Rossmoor Retarding Basin

Los Alamitos Retarding Basin

Los Alamitos Naval Air Station

Seal Beach Naval Weapons Station

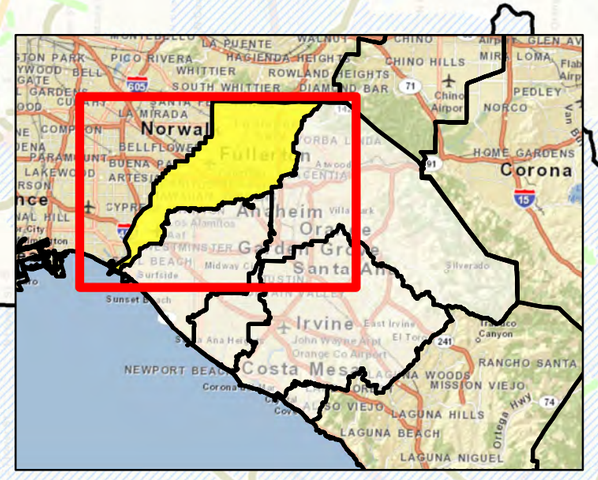
Anaheim

Santa River Watershed

Anaheim Bay-Huntington Harbor Watershed

Newport Bay-Newport Coastal Streams Watershed

0 8,000 16,000 Feet



TITLE
SUSCEPTIBILITY ANALYIS
SAN GABRIEL-COYOTE CREEK
ORANGE COUNTY
WATERSHED
MASTER PLANNING

JOB
ORANGE CO.

SCALE	1" = 8000'
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	04/30/10
JOB NO.	9526-E

PACE
Advanced Water Engineering

CA

1

P:\9526E\6-GIS\Mxds\SuceptabilityMaps_20100505\9526E_SanGabrielCoyoteCreekSusceptibility_20100430.mxd

Attachment G: LID Calculations

Worksheet A: Hydrologic Source Control Calculation Form

		Drainage area ID	DMA A	
		Total drainage area	1.03	acres
		Total drainage area Impervious Area (IA_{total})	0.78	acres
HSC ID	HSC Type/ Description/ Reference BMP Fact Sheet	Effect of individual HSC_i per criteria in **BMP Fact Sheets (XIV.1)** (d_{HSCi})[1]	Impervious Area Tributary to HSC_i (IA_i)	$d_i \times IA_i$
	HSC criteria is not used	0	0.78	0
	for this project			
	Box 1:		$\sum d_i \times IA_i =$	0
	Box 2:		$IA_{total} =$	0
	[Box 1]/[Box 2]:		$d_{HSC\ total} =$	0
			*Percent Capture Provided by HSCs (**Table III.1**)*	0

1 - For HSCs meeting criteria to be considered self-retaining, enter the DCV for the project.

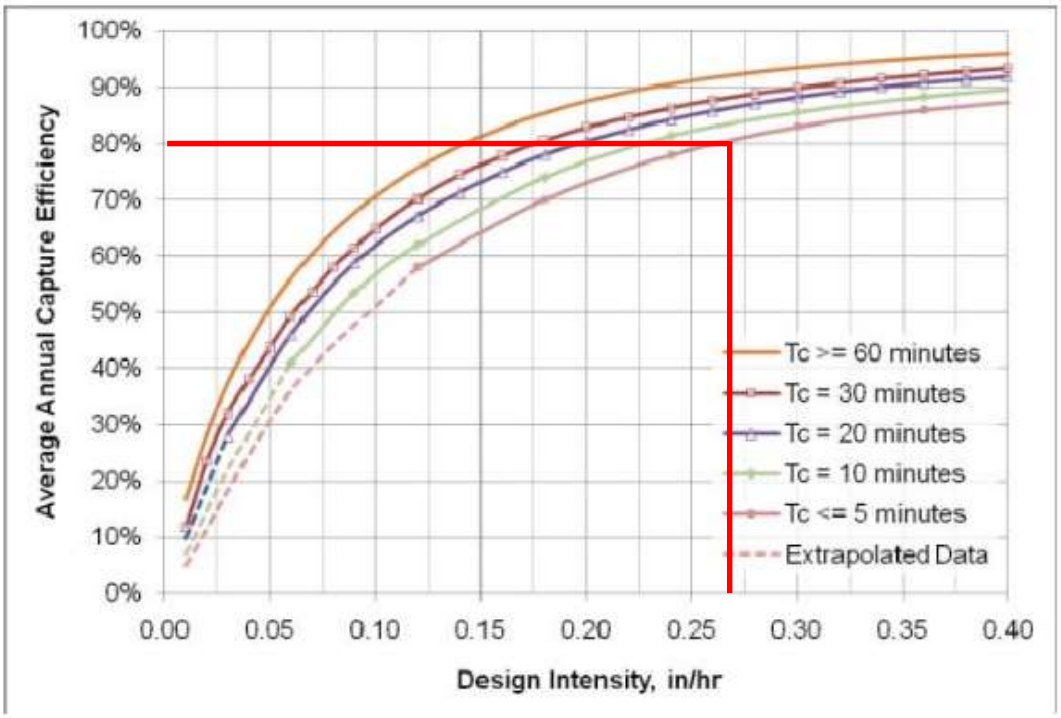
Worksheet B: Simple Design Capture Volume Sizing Method

Step 1: Determine the design capture storm depth used for calculating volume				
1	Enter design capture storm depth from Figure III.1, *d* (inches)	d=	0.9	inches
2	Enter the effect of provided HSCs, d_{HSC} (inches) (Worksheet A)	d_{HSC}=	0	inches
3	Calculate the remainder of the design capture storm depth, $d_{remainder}$ (inches) (Line 1 – Line 2)	$d_{remainder}$=	0.9	inches
Step 2: Calculate the DCV				
1	Enter Project area tributary to BMP (s), *A* (acres)	A=	1.03	acres
2	Enter Project Imperviousness, *imp* (unitless)	imp=	0.81	
3	Calculate runoff coefficient, *C= (0.75 x imp) + 0.15*	C=	0.76	
4	Calculate runoff volume, $V_{design} = (C \times d_{remainder} \times A \times 43560 \times (1/12))$	V_{design}=	2549	cu-ft
Step 3: Design BMPs to ensure full retention of the DCV				
Step 3a: Determine design infiltration rate				
1	Enter measured infiltration rate, $K_{observed}$ [1] (in/hr) (**Appendix VII**)	$K_{observed}$=	4.74	In/hr
2	Enter combined safety factor from Worksheet H, S_{total} (unitless)	S_{total}=	3	
3	Calculate design infiltration rate, $K_{design} = K_{observed} / S_{total}$	K_{design}=	1.58	In/hr
Step 3b: Determine minimum BMP footprint				
4	Enter drawdown time, *T* (max 48 hours)	T=	48	Hours
5	Calculate max retention depth that can be drawn down within the drawdown time (feet), $D_{max} = K_{design} \times T \times (1/12)$	D_{max}=	6.32	feet
6	Calculate minimum area required for BMP (sq-ft), A_{min} = *Vdesign/ dmax*	A_{min}=	403	sq-ft

6201 Lincoln Avenue
Worksheet D: Capture Efficiency Method for Flow-Based
July 18, 2025

BMP #1 - MWS

Step 1: Determine the design capture storm depth used for calculating volume				
1	Enter the time of concentration, T_c (min)	T_c=	6.1	min
2	Using Figure III.4, determine the design intensity at which the estimated time of concentration (T_c) achieves 80% capture efficiency	I_t=	0.26	in/hr
3	Enter the effect depth of provided HSCs upstream, d_{HSC} (inches) (Worksheet A)	d_{HSC}=	0	inches
4	Enter capture efficiency corresponding to d_{HSC}, Y_2 (Worksheet A)	Y_2=	0	%
5	Using Figure III.4, determine the design intensity at which the estimated time of concentration (T_c) achieves the upstream capture efficiency (Y_2), I_2	I_2=	0	
6	Determine the design intensity that must be provided by BMP I_{design}=It-I2	idesign	0.26	in/hr
Step 2: Calculate the design flowrate				
1	Enter Project area tributary to BMP, A (acres)	A =	1.03	acres
2	Enter Project Imperviousness, imp (unitless)	imp =	0.81	
3	Calculate runoff coefficient, C = (0.75 x imp) + 0.15	C =	0.76	
4	Calculate design flow rate, Q_{design} = (C x i_{design} x A)	Q_{design} =	0.203	cfs
Supporting Calculations				



Worksheet H: Factor of Safety and Design Infiltration Rate and Worksheet

Factor Category		Factor Description	Assigned Weight (w)	Factor Value (v)	Product (p) p = w x v
A	Suitability Assessment	Soil assessment methods	0.25		0
		Predominant soil texture	0.25		0
		Site soil varaibility	0.25		0
		Depth of groundwater / impervious layer	0.25		0
		Suitability Assessment Safety Factor, $S_A = \sum p$			2.0
B	Design	Tributary area size	0.25	1.00	0.25
		Level of pretreament/expected sediment loads	0.25	2.00	0.5
		Redundancy	0.25	2.00	0.5
		Compaction during construction	0.25	1.00	0.25
		Design Safety Factor, $S_B = \sum p$			1.5
Combined Safety Factor, $S_{Total} = S_A \times S_B$				3	
Observed Infiltration Rate, inch/hr, $K_{observed}$ (corrected for test-specific bias)					
Design Infiltration Rate, in/hr, $K_{DESIGN} = K_{observed} / S_{Total}$					
Supporting Data					

Table 2.7: Infiltration BMP Feasibility Worksheet

	Infeasibility Criteria	*Yes*	*No*
1	**Would Infiltration BMPs pose significant risk for groundwater related concerns?** Refer to **Appendix VIII** (Worksheet I) for guidance on groundwater-related infiltration feasibility criteria.		X
Provide basis: Based on the Geotechnical Report prepared by Leighton Consulting, Inc. dated June 3, 2024, on-site groundwater seepage was observed at 13.3 and 10 ft below ground surface. We follow the Geotechnical Report's use of 10 ft below ground surface for our design. Our site has portions of fill and cut, which were considered in BMP selection and placement. Our site is not suitable for infiltration BMPs requiring a 10 ft (continued below)			
2	Would Infiltration BMPs **pose significant risk of increasing risk of geotechnical hazards that cannot be mitigated to an acceptable level**? (Yes if the answer to any of the following questions is yes, as established by a geotechnical expert): • The BMP can only be located less than 50 feet away from slopes steeper than 15 percent • The BMP can only be located less than eight feet from building foundations or an alternative setback. • A study prepared by a geotechnical professional or an available watershed study substantiates that stormwater infiltration would potentially result in significantly increased risks of geotechnical hazards that cannot be mitigated to an acceptable level.		X
Provide basis: Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
3	Would infiltration of the DCV from drainage area **violate downstream water rights**?		X
Provide basis: Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			

(continued) groundwater separation as they would need to be on surface, very shallow, and therefore have very low infiltration capacity. Due to the portions of cut from the existing surface, runoff flow paths, and proximity to an existing wall, not all landscaped areas are suitable to be used for bioretention. We are unable to meet the full Design Capture Volume (DCV) (2,549 cu-ft) and meet 5 ft groundwater separation with the available areas, so we propose to treat to the maximum extent feasible volume for our site, which is about 1,213 cu-ft total between two (2) bioretention areas without underdrains. The remaining 1,336 cu-ft of the DCV will be treated by one (1) Modular Wetland System (MWS), a proprietary vegetated biotreatment system. Groundwater mounding and bioretention design provided in Appendix G.

Table 2.7: Infiltration BMP Feasibility Worksheet (continued)

	Partial Infeasibility Criteria	***Yes***	***No***
4	Is proposed infiltration facility **located on HSG D soils** or the site geotechnical investigation identifies presence of soil characteristics which support categorization as D soils?		X
Provide basis: Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
5	Is **measured infiltration rate below proposed facility less than 0.3 inches per hour**? This calculation shall be based on the methods described in **Appendix VII**.		X
Provide basis: Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
6	Would **reduction of over predeveloped conditions cause impairments to downstream beneficial uses, such as change of seasonality of ephemeral washes or increased discharge of contaminated groundwater to surface waters?**		X
Provide citation to applicable study and summarize findings relative to the amount of infiltration that is permissible: Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
7	Would **an increase in infiltration over predeveloped conditions cause impairments to downstream beneficial uses, such as change of seasonality of ephemeral washes or increased discharge of contaminated groundwater to surface waters?**		X
Provide citation to applicable study and summarize findings relative to the amount of infiltration that is permissible: Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			

Table 2.7: Infiltration BMP Feasibility Worksheet (continued)

Infiltration Screening Results (check box corresponding to result):		
8	Is there substantial evidence that infiltration from the project would result in a significant increase in I&I to the sanitary sewer that cannot be sufficiently mitigated? (See **Appendix XVII**) Provide narrative discussion and supporting evidence: Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.	
9	If any answer from row 1-3 is yes: infiltration of any volume is **not feasible** within the DMA or equivalent. Provide basis: Summarize findings of infeasibility screening	
10	If any answer from row 4-7 is yes, infiltration is **permissible but is not presumed to be feasible for the entire DCV.** Criteria for designing biotreatment BMPs to achieve the maximum feasible infiltration and ET shall apply. Provide basis: Summarize findings of infeasibility screening	
11	If all answers to rows 1 through 11 are no, infiltration of the full DCV is potentially feasible, BMPs must be designed to infiltrate the full DCV to the maximum extent practicable.	See row 1 for detail on why only a portion of DCV can infiltrate.

Harvest and Use Infeasibility

Harvest and use infeasibility criteria include:

- If inadequate demand exists for the use of the harvested rainwater. See **Appendix X** for guidance on determining harvested water demand and applicable feasibility thresholds.
- If the use of harvested water for the type of demand on the project violates codes or ordinances most applicable to stormwater harvesting in effect at the time of project application and a waiver of these codes and/or ordinances cannot be obtained. It is noted that codes and ordinances most applicable to stormwater harvesting may change

Worksheet I: Summary of Groundwater-related Feasibility Criteria

1	Is project large or small? (as defined by **Table VIII.2**) circle one	Large	(Small)	
2	What is the tributary area to the BMP?	A	1.03	acres
3	What type of BMP is proposed?	2 bioretention basins with no underdrain and 1 proprietary biotreatment		
4	What is the infiltrating surface area of the proposed BMP?	A_{BMP}	DMA A: 725 DMA B: 487	sq-ft
5	What land use activities are present in the tributary area (list all) Parking lot, drive-thru, trash enclosure, landscape			
6	What land use-based risk category is applicable?	L	(M)	H
7	If M or H, what pretreatment and source isolation BMPs have been considered and are proposed (describe all): Catch basin with trash capture inserts			
8	What minimum separation to mounded seasonally high groundwater applies to the proposed BMP? See Section **VIII.2** (circle one)	(5 ft)	10 ft	
9	Provide rationale for selection of applicable minimum separation to seasonally high mounded groundwater: Bioretention planter with no underdrain BMP allows us to treat the most DCV with our proposed site, but can't treat the full DCV while maintaining a 5 ft groundwater separation. The remaining DCV will be treated by the proprietary biotreatment system.			
10	What is separation from the infiltrating surface to seasonally high groundwater?	SHGWT	DMA 2: 7 DMA B: 6.5	ft
11	What is separation from the infiltrating surface to mounded seasonally high groundwater?	Mounded SHGWT	DMA 2: 5.7 DMA B: 5.8	ft
12	Describe assumptions and methods used for mounding analysis: Since our site has portions of cut and fill, the proposed surface is at or within 10 ft of the groundwater table, so it can be assumed there will be mounding from our infiltrating BMPs. The groundwater mounding height was determined through the Hantush equation for each bioretention basin. SHGWT was determined assuming 10 ft below the existing surface based on geotechnical report findings. Mounded SHGWT was determined assuming the calculated mounding height is on top of the groundwater, 10 ft below the existing surface.			
13	Is the site within a plume protection boundary (See **Figure**	Y	(N)	N/A

Worksheet I: Summary of Groundwater-related Feasibility Criteria

	VIII.2)?	
14	Is the site within a selenium source area or other natural plume area (See Figure VIII.2)?	Y (N) N/A
15	Is the site within 250 feet of a contaminated site?	Y (N) N/A
16	If site-specific study has been prepared, provide citation and briefly summarize relevant findings:	
17	Is the site within 100 feet of a water supply well, spring, septic system?	Y (N) N/A
18	Is infiltration feasible on the site relative to groundwater-related criteria?	(Y) N

Provide rationale for feasibility determination:
Based on the Geotechnical Report prepared by Leighton Consulting, Inc. dated June 3, 2024, on-site groundwater seepage was observed at 13.3 and 10 ft below ground surface. We follow the Geotechnical Report's use of 10 ft below ground surface for our design. Our site has portions of fill and cut, which were considered in BMP selection and placement. Our site is not suitable for infiltration BMPs requiring a 10 ft groundwater separation as they would need to be on surface, very shallow, and therefore have very low infiltration capacity. Due to the portions of cut from the existing surface, runoff flow paths, and proximity to an existing wall, not all landscaped areas are suitable to be used for bioretention. We are unable to meet the full Design Capture Volume (DCV) (2,549 cu-ft) and meet 5 ft groundwater separation with the available areas, so we propose to treat to the maximum extent feasible volume for our site, which is about 1,213 cu-ft total between two (2) bioretention areas without underdrains. The remaining 1,336 cu-ft of the DCV will be treated by one (1) Modular Wetland System (MWS), a proprietary vegetated biotreatment system. Groundwater mounding and bioretention design has been provided in Appendix G.

Note: if a single criterion or group of criteria would render infiltration infeasible, it is not necessary to evaluate every question in this worksheet.

Bioretention with no Underdrain Sizing Calculations

$d_{48} = K_{design} \times 4$ Depth of effective storage depth that can be drawn down in 48 hr

K_{design} = 1.58 in/hr from Worksheet B

d_{48} = 6.32 ft

Media layers - Maximum effective depth of basin below overflow device

$d_{effective} = (d_p + n_m d_M + n_G d_G)$

For DMA 2

Ponding depth

d_p = 0.5 ft

Bioretention media

n_M = 0.3

d_M = 1.5 ft

Bioretention gravel

n_G = 0.35

d_G = 1 ft

$d_{effective}$ = 1.3 ft $< d_{48}$

For DMA 3

d_p = 0.5 ft

n_M = 0.3

d_M = 2 ft

n_G = 0.35

d_G = 1 ft

$d_{effective}$ = 1.45 ft $< d_{48}$

Depth of infiltrating surface from overflow device

$d_{total} = d_p + d_M + d_G$

For DMA 2

d_{total} = 3 ft

For DMA 3

d_{total} = 3.5 ft

Groundwater mounding height in DMA 2

1.312 ft from Hantush equation

Groundwater mounding height in DMA 3

0.68 ft from Hantush equation

Groundwater mounding and infiltrating surface separation must at least be 5 ft

Separation = 10 ft* - Mounding height - d_{total}

*Assume groundwater at 10 ft below existing ground surface

Separation in DMA 2

5.688 ft > 5 ft

Separation in DMA 3

5.82 ft > 5 ft

Actual separation may vary over existing surface and if proposed surface cuts/fills

Bioretention area available in DMA 2

$A_{DMA\ 2}$ = 566 sq-ft

Volume that can be treated

$V = A \times d_{effective}$

$V_{DMA\ 2}$ = 735.8 cu-ft

Bioretention area available in DMA 3

$A_{DMA\ 3}$ = 408 sq-ft

Volume that can be treated

$V = A \times d_{effective}$

$V_{DMA\ 3}$ = 530.4 cu-ft

$DCV_{remaining} = DCV - V_{DMA\ 2} - V_{DMA\ 3}$

DCV = 2,549 cu-ft from Worksheet B

$DCV_{remaining}$ = 1,282.8 cu-ft to be treated by other BMPs

DMA 2

This spreadsheet will calculate the height of a groundwater mound beneath a stormwater infiltration basin. More information can be found in the U.S. Geological Survey Scientific Investigations Report 2010-5102 "Simulation of groundwater mounding beneath hypothetical stormwater infiltration basins".

The user must specify infiltration rate (R), specific yield (Sy), horizontal hydraulic conductivity (Kh), basin dimensions (x, y), duration of infiltration period (t), and the initial thickness of the saturated zone (hi(0), height of the water table if the bottom of the aquifer is the datum). For a square basin the half width equals the half length (x = y). For a rectangular basin, if the user wants the water-table changes perpendicular to the long side, specify x as the short dimension and y as the long dimension. Conversely, if the user wants the values perpendicular to the short side, specify y as the short dimension, x as the long dimension. All distances are from the center of the basin. Users can change the distances from the center of the basin at which water-table aquifer thickness are calculated.
Cells highlighted in yellow are values that can be changed by the user. Cells highlighted in red are output values based on user-specified inputs. The user MUST click the blue "Re-Calculate Now" button each time ANY of the user-specified inputs are changed otherwise necessary iterations to converge on the correct solution will not be done and values shown will be incorrect. Use consistent units for all input values (for example, feet and days)

use consistent units (e.g. feet & days **or** inches & hours)

Input Values		
3.1600	***R***	**Recharge (infiltration) rate (feet/day)**
0.200	**Sy**	**Specific yield, Sy (dimensionless, between 0 and 1)**
47.40	**K**	**Horizontal hydraulic conductivity, Kh (feet/day)***
17.650	**x**	**1/2 length of basin (x direction, in feet)**
10.280	**y**	**1/2 width of basin (y direction, in feet)**
10.000	**t**	**duration of infiltration period (days)**
20.000	**hi(0)**	**initial thickness of saturated zone (feet)**

21.312	**h(max)**	**maximum thickness of saturated zone (beneath center of basin at end of infiltration period)**
1.312	**Δh(max)**	**maximum groundwater mounding (beneath center of basin at end of infiltration period)**

Conversion Table

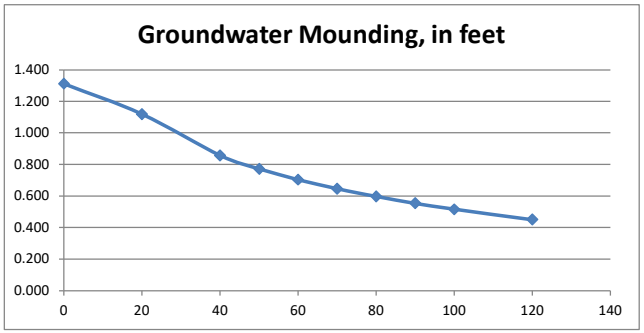
inch/hour	feet/day
0.67	1.33
2.00	4.00

hours	days
36	1.50

In the report accompanying this spreadsheet (USGS SIR 2010-5102), vertical soil permeability (ft/d) is assumed to be one-tenth horizontal hydraulic conductivity (ft/d).

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
1.312	0
1.120	20
0.857	40
0.773	50
0.704	60
0.647	70
0.597	80
0.554	90
0.516	100
0.451	120

Re-Calculate Now



Disclaimer

This spreadsheet solving the Hantush (1967) equation for ground-water mounding beneath an infiltration basin is made available to the general public as a convenience for those wishing to replicate values documented in the USGS Scientific Investigations Report 2010-5102 "Groundwater mounding beneath hypothetical stormwater infiltration basins" or to calculate values based on user-specified site conditions. Any changes made to the spreadsheet (other than values identified as user-specified) after transmission from the USGS could have unintended, undesirable consequences. These consequences could include, but may not be limited to: erroneous output, numerical instabilities, and violations of underlying assumptions that are inherent in results presented in the accompanying USGS published report. The USGS assumes no responsibility for the consequences of any changes made to the spreadsheet. If changes are made to the spreadsheet, the user is responsible for documenting the changes and justifying the results and conclusions.

DMA 3

This spreadsheet will calculate the height of a groundwater mound beneath a stormwater infiltration basin. More information can be found in the U.S. Geological Survey Scientific Investigations Report 2010-5102 "Simulation of groundwater mounding beneath hypothetical stormwater infiltration basins".

The user must specify infiltration rate (R), specific yield (Sy), horizontal hydraulic conductivity (Kh), basin dimensions (x, y), duration of infiltration period (t), and the initial thickness of the saturated zone (hi(0), height of the water table if the bottom of the aquifer is the datum). For a square basin the half width equals the half length (x = y). For a rectangular basin, if the user wants the water-table changes perpendicular to the long side, specify x as the short dimension and y as the long dimension. Conversely, if the user wants the values perpendicular to the short side, specify y as the short dimension, x as the long dimension. All distances are from the center of the basin. Users can change the distances from the center of the basin at which water-table aquifer thickness are calculated.
Cells highlighted in yellow are values that can be changed by the user. Cells highlighted in red are output values based on user-specified inputs. The user MUST click the blue "Re-Calculate Now" button each time ANY of the user-specified inputs are changed otherwise necessary iterations to converge on the correct solution will not be done and values shown will be incorrect. Use consistent units for all input values (for example, feet and days)

use consistent units (e.g. feet & days **or** inches & hours)

Input Values

3.1600	*R*	**Recharge (infiltration) rate (feet/day)**
0.200	Sy	**Specific yield, Sy (dimensionless, between 0 and 1)**
47.40	K	**Horizontal hydraulic conductivity, Kh (feet/day)***
36.305	x	**1/2 length of basin (x direction, in feet)**
2.775	y	**1/2 width of basin (y direction, in feet)**
10.000	t	**duration of infiltration period (days)**
20.000	hi(0)	**initial thickness of saturated zone (feet)**

Conversion Table

inch/hour	feet/day
0.67	1.33
2.00	4.00

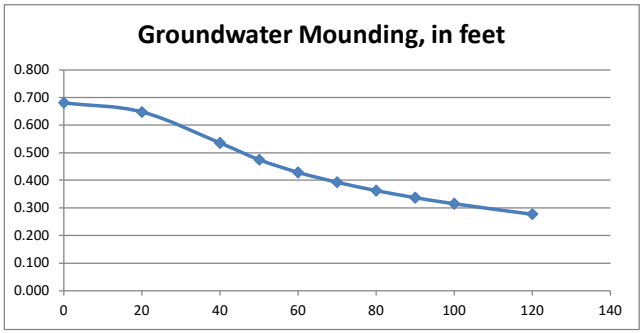
hours	days
36	1.50

In the report accompanying this spreadsheet (USGS SIR 2010-5102), vertical soil permeability (ft/d) is assumed to be one-tenth horizontal hydraulic conductivity (ft/d).

20.680	h(max)	**maximum thickness of saturated zone (beneath center of basin at end of infiltration period)**
0.680	Δh(max)	**maximum groundwater mounding (beneath center of basin at end of infiltration period)**

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
0.680	0
0.647	20
0.535	40
0.475	50
0.429	60
0.393	70
0.363	80
0.337	90
0.315	100
0.277	120

Re-Calculate Now

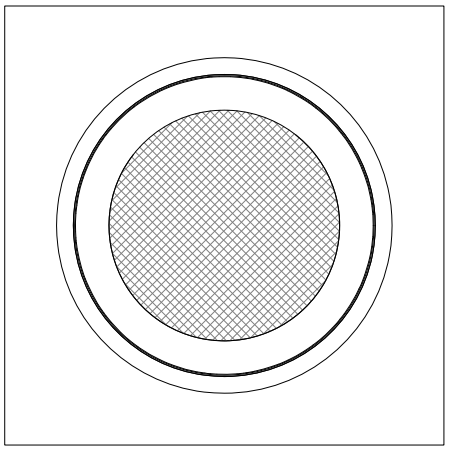


Disclaimer

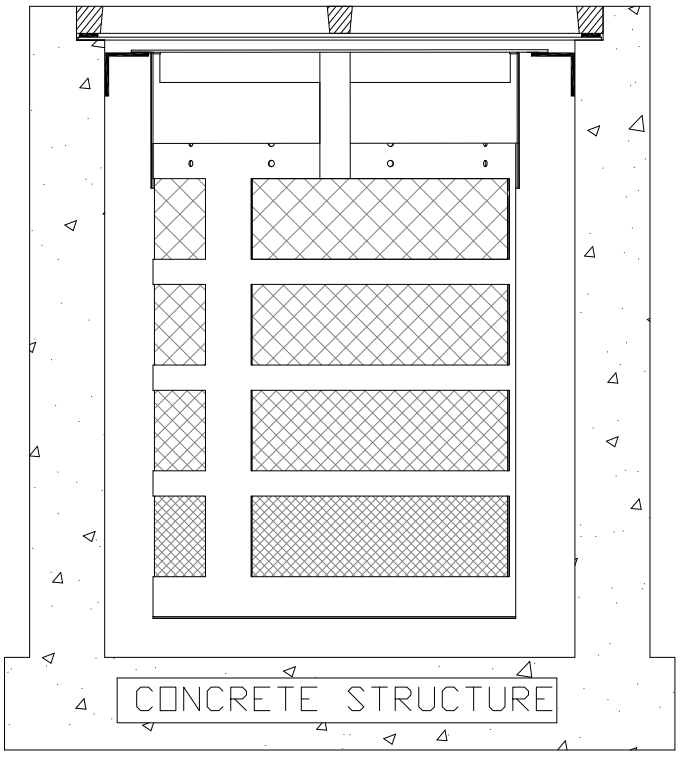
This spreadsheet solving the Hantush (1967) equation for ground-water mounding beneath an infiltration basin is made available to the general public as a convenience for those wishing to replicate values documented in the USGS Scientific Investigations Report 2010-5102 "Groundwater mounding beneath hypothetical stormwater infiltration basins" or to calculate values based on user-specified site conditions. Any changes made to the spreadsheet (other than values identified as user-specified) after transmission from the USGS could have unintended, undesirable consequences. These consequences could include, but may not be limited to: erroneous output, numerical instabilities, and violations of underlying assumptions that are inherent in results presented in the accompanying USGS published report. The USGS assumes no responsibility for the consequences of any changes made to the spreadsheet. If changes are made to the spreadsheet, the user is responsible for documenting the changes and justifying the results and conclusions.

BIO CLEAN SCREENING FILTER

FOR USE IN GRATE INLETS

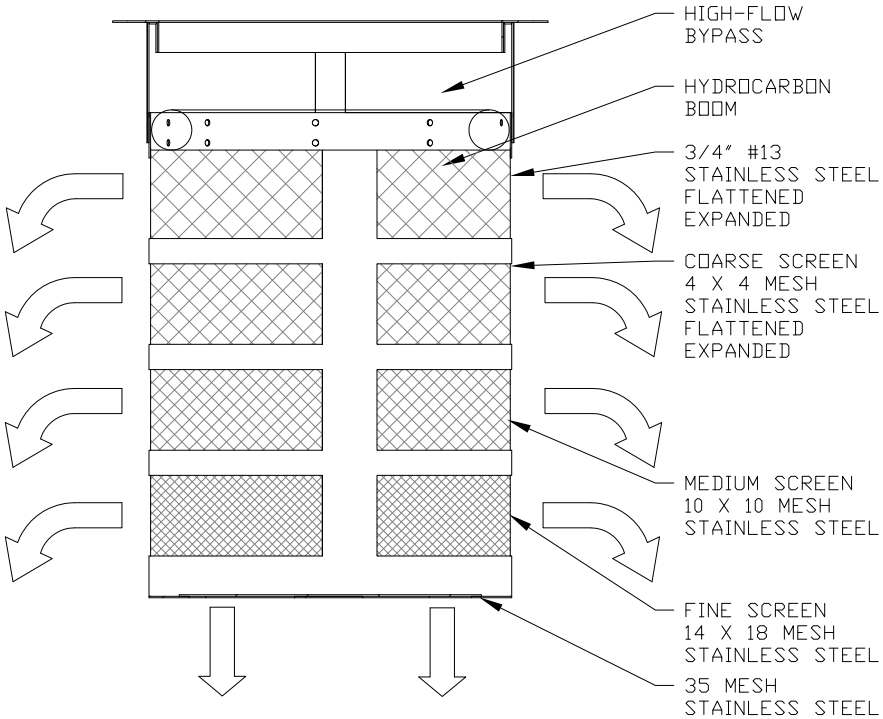


TOP VIEW



NOTES:

1. ALL HARDWARE, FLANGE, FRAME, SCREENS SHALL BE STAINLESS STEEL
2. HYDROCARBON BOOM SHALL BE 2" DIAMETER AND CONNECTED, MECHANICALLY TO THE FILTER FRAME WITH RAILS ALLOWING IT TO FLOAT ON THE WATER SURFACE REGARDLESS OF HEIGHT
3. SEE PERFORMANCE REPORTS IN MANUFACTURES SPECIFICATIONS
4. OTHER STANDARD AND CUSTOM MODEL SIZES AVAILABLE – CONTACT BIO CLEAN FOR MORE INFORMATION.
5. BASED ON 37% OPEN AREA.
6. CONSIDERS A SAFETY FACTOR OF 2.0.
7. CONSIDERS A LOCAL DEPRESSION PONDIING DEPTH OF 6 INCHES.
8. STORAGE CAPACITY BASED ON THE BASKET HALF FULL.



FLOW SCHEMATIC

MODEL #	TREATMENT FLOW (CFS)	BYPASS FLOW (CFS)	SOLIDS STORAGE CAPACITY (CF)
BC-GRATE-MLS 12-12-12	1.19	1.55	0.27
BC-GRATE-MLS 18-18-18	4.32	3.68	1.05
BC-GRATE-MLS 24-24-24	7.67	4.83	2.41
BC-GRATE-MLS 30-30-24	12.97	6.21	3.98
BC-GRATE-MLS 25-38-24	13.53	6.59	4.16
BC-GRATE-MLS 36-36-24	19.64	7.60	5.94
BC-GRATE-MLS 48-48-18	24.84	10.13	7.92

**FLOW RATES CALCULATED USING THE FOLLOWING EQUATION

$Q = S \cdot c_d \cdot A \sqrt{2 \cdot g \cdot h}$ c_d = COEFFICIENT of DISCHARGE = .62

DRAWING: BIO CLEAN GRATE INLET FILTER DETAILS		MULTI-LEVEL SCREENING	
TYPICAL MODEL DETAIL			
WARRANTY: 5 YEAR MANUFACTURERS		PROJECT:	
BIO CLEAN ENVIRONMENTAL SERVICES, INC. 398 VIA EL CENTRO, OCEANSIDE CA 92058 PHONE: 760-433-7640 FAX: 760-433-3176		REVISIONS:	DATE:
		REVISIONS:	DATE:
DATE: 10/12/17	SCALE: SF = 15	REVISIONS:	DATE:
DRAFTER: M.C.P.	UNITS = INCHES	REVISIONS:	DATE:

Bio Clean
A Forterra Company

Section [_____]
Stormwater Catch Basin Filtration Device

PART 1 – GENERAL

01.01.00 Purpose
The purpose of this specification is to establish generally acceptable criteria for devices used for filtration of stormwater runoff captured by catch basins with grates. It is intended to serve as a guide to producers, distributors, architects, engineers, contractors, plumbers, installers, inspectors, agencies and users; to promote understanding regarding materials, manufacture and installation; and to provide for identification of devices complying with this specification.

01.02.00 Description
Stormwater Catch Basin Filtration Devices (SCBFD) are used to filter stormwater runoff captured by catch basins. The SCBFD is a filter system composed of a SCBFD with a media filtration storm boom. SCBFDs are used to remove various pollutants from stormwater by means of screening, separation and media filtration.

01.03.00 Manufacturer
The manufacturer of the SCBFD shall be one that is regularly engaged in the engineering, design and production of systems developed for the treatment of stormwater runoff for at least (10) years, and which have a history of successful production, acceptable to the engineer of work. In accordance with the drawings, the SCBFD(s) shall be a filter device manufactured/distributed by Bio Clean Environmental Services, Inc., or assigned distributors or licensees. Bio Clean Environmental Services, Inc. can be reached at:

Corporate Headquarters:
398 Via El Centro
Oceanside, CA 92058
Phone: (760) 433-7640
Fax: (760) 433-3176
www.biocleanenvironmental.net

01.04.00 Submittals

01.04.01 Submittal drawings will be provided with each order to the contractor and engineer of work.

01.04.02 Submittal drawings are to detail the SCBFD, its components and the sequence for installation, including:
- SCBFD configuration with primary dimensions
- Various SCBFD components
- Any accessory equipment

01.04.03 Inspection and maintenance documentation submitted upon request.

01.05.00 Work Included

01.05.01 Specification requirements for installation of SCBFD.

01.05.02 Manufacturer to supply SCBFD(s):
- Filter Basket
- Media Filtration Storm Boom

01.05.03 Media Filtration Boom shall be provided with each Filter Basket housed in nylon netting and securely fastened entrance to the Filtration basket. Each media boom shall contain polymer beads to permanently absorb hydrocarbons.

01.06.00 Reference Standards

ASTM A 240	Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications
ASTM F 716	Testing Sorbent Performance of Absorbents
ASTM F 726	Sorbent Performance of Absorbents
ASTM D3787 - 07	Standard Test Method for Bursting Strength of Textiles-Constant-Rate-of-Traverse (CRT) Ball Burst Test
ASTM D2690-98	Standard Test Method for Isophthalic Acid in Alkyd and Polyester Resins
ASTM C 582-02	Standard Specification for Contact-Molded Reinforced Thermosetting Plastic (RTP) Laminates for Corrosion-Resistant Equipment
ASTM D 638	Standard Test Method for Tensile Properties of Plastics
ASTM D 790	Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
ASTM D 648	Standard Test Method for Deflection Temperature of Plastics Under Flexural Load in the Edgewise Position
ASTM D 2583	Standard Test Method for Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor
ASTM D 4097	Standard Specification for Contact-Molded Glass-Fiber-Reinforced Thermoset Resin Corrosion-Resistant Tanks
ASTM D3409	Standard Test Method for Adhesion of Asphalt-Roof Cement to Damp, Wet, or Underwater Surfaces
IFI 114	Break Mandrel Blind Rivets

PART 2 – COMPONENTS

02.01.00 Filter Basket Components

All SCBFD components must be made of stainless steel, per these specifications. SCBFD's containing any fabrics or plastics will not be accepted.

02.01.01 Filter Housing shall be manufactured of 100% stainless steel.

02.02.02 Side Screens shall be manufactured of 100% stainless steel louver expanded metal with openings equal to or less than 4.7 mm in size.

- Screens shall be oriented with openings opposite to the flow of water into the filter and be non-clogging based on perpetual deflective shielding.

02.02.03 Bottom Screens shall be manufactured of 100% stainless steel perforated round openings less than 5 mm in size.

02.02.04 Media Filtration Boom shall be made up of granulated oil absorbing polymers that have been tested in accordance with section 11.2 of ASTM F 716.07 and held within a netting.

- Oil absorbing polymers must be proven to absorb 180% of its weight within a 300 second contact time, and at this absorption percentage the physical increase in the size of the granules is not more that 50%.

- Netting shall be 100% polyester with a number 16 sieve size, and strength tested per ASTM D 3787.
- Filter netting shall be 100% polyester with a number 16 sieve size, and strength tested per ASTM D 3787.

PART 3 – PERFORMANCE

03.01.00 General

03.01.01 Function - The SCBFD has no moving internal components and functions based on gravity flow, unless otherwise specified. Runoff enters the SCBFD from a catch basin with a grate opening and flows downward into the SCBFD. This SCBFD shall be positioned directly under the catch basin grate. After removal of the grate the SCBFD must be able to be removed through the catch basin opening without any further disassembly Stormwater enters the inside of the Filter Basket and flows downward toward the bottom portion of the Basket. The non-clogging screen has openings that are facing upward. As water flows downward the screening continuously removes debris from the screen's surface. Flowing water also makes contact with the Media Filtration Boom which absorbs free floating oils. Stormwater flow up to the peak treatment flow rate is processed through the filtration screens. During the heaviest flows the Basket fills with water and spills out the internal bypass and into the bottom of the catch basin.

03.01.02 Pollutants - The SCBFD will remove and retain debris, sediments, metals, nutrients, oxygen demanding substances and hydrocarbons entering the catch basin during frequent storm events and specified flow rates. For pollutant removal performance see section 03.02.00.

03.01.03 Treatment Flow Rate - The SCBFD operates using gravity flow. The SCBFD treatment flow rate varies by size and is provided on the drawings for each model. Flow rates must be supported by independent lab results.

03.01.04 Bypass Flow Rate – The SCBFD is designed to fit within the catch basin in a way not to affect the existing hydraulics and treat or bypass all flows. The bypass must be sized with a surface area greater then the outlet pipe size, thus the SCBFD shall not be a critical point of flow restriction. Bypass flow rate must be based on the SCBFD's inlet throat or bypass orifice capacity, which ever is less.

03.01.05 Pollutant Load – The SCBFD must be designed to have minimum storage

03.01.06 capacity as documented on the drawing for each particular size and model.

03.01.07 Performance Protocol and Results – All lab testing on filtration media must be performed by an independent third party consultant and testing lab.

03.02.00 Test Performance

At a minimum, the SCBFD shall be tested, according to section 03.01.06, and meet these performance specifications:

03.02.01 Filter Pollutant Removal Table

POLLUTANT	REMOVAL EFFICIENCY
Trash and Debris - (down to 5 mm)	100%

PART 4 - EXECUTION

04.01.00 General

The installation and use of the SCBFD shall conform to all applicable national, state, municipal and local specifications.

04.02.00 Installation

The contractor shall furnish all labor, equipment, materials and incidentals required to install the (SCBFD) device(s) and appurtenances in accordance with the drawings, installation manual, and these specifications, and be inspected and approved by the local governing agency. Installation contractor should possess a Confined Space Entry Certification Permit, pursuant to OSHA standards. Any damage to catch basin and surrounding infrastructure caused by the installation of the SCBFD is the responsibility of the installation contractor.

04.02.01 Filter Basket and all components or accessories shall be inserted through the catch basin and properly secured per manufactures installation manual and these specifications.

04.03.00 Shipping, Storage and Handling

04.03.01 Shipping – SCBFD shall be shipped to the contractor's address and is the responsibility of the contractor to transport the unit(s) to the exact site of installation.

04.03.02 Storage and Handling– The contractor shall exercise care in the storage and handling of the SCBFD(s) and its components prior to and during installation. Any repair or replacement costs associated with events occurring after delivery is accepted, and unloading has commenced shall be born by the contractor. The SCBFD(s) and its components shall always be stored indoors and transported inside the original shipping container(s) until the SCBFD(s) are ready to be installed. The SCBFD shall always be handled with care and lifted according to OSHA and NIOSA lifting recommendations and/or contractor's workplace safety professional recommendations.

04.04.00 Maintenance and Inspection

04.04.01 Inspection – After installation, the contractor shall demonstrate that the SCBFD has been properly installed at the correct location(s), elevations, and with appropriate supports and fasteners. All components associated with the SCBFD and its installation shall be subject to inspection by the engineer of work, governing agency, and the manufacture at the place of installation. In addition, the contractor shall demonstrate that the SCBFD has been installed per the manufacturer's specifications and recommendations. SCBFD(s) shall be physically inspected regularly in accordance to owner's Stormwater Pollution Prevention Plans (SWPPP) and manufacture's recommendations. An inspection record shall be kept by the inspection operator. The record shall include the condition of the SCBFD and its appurtenances. The most current copy of the inspection record shall always be copied and placed in the owner's SWPPP.

04.04.02 Maintenance – The manufacturer recommends cleaning and debris removal and replacement of the Media Filtration Boom as needed. The maintenance shall be preformed by someone qualified. A Maintenance Manual is available upon request from the manufacturer. The manual has detailed information

regarding the maintenance of the SCBFD(s). A detailed Maintenance Record shall be kept by the maintenance operator. The Maintenance Record shall include any maintenance activities preformed, amount and description of debris collected, and the condition of the filter. The most current copy of the Maintenance Record shall always be copied and placed in the owner's Stormwater Pollution Prevention Plan (SWPPP) per governing agency.

04.04.03 Material Disposal - All debris, trash, organics, and sediments captured and removed from the SCBFD shall be transported and disposed of at an approved facility for disposal in accordance with local and state regulations. Please refer to state and local regulations for the proper disposal of toxic and non-toxic material.

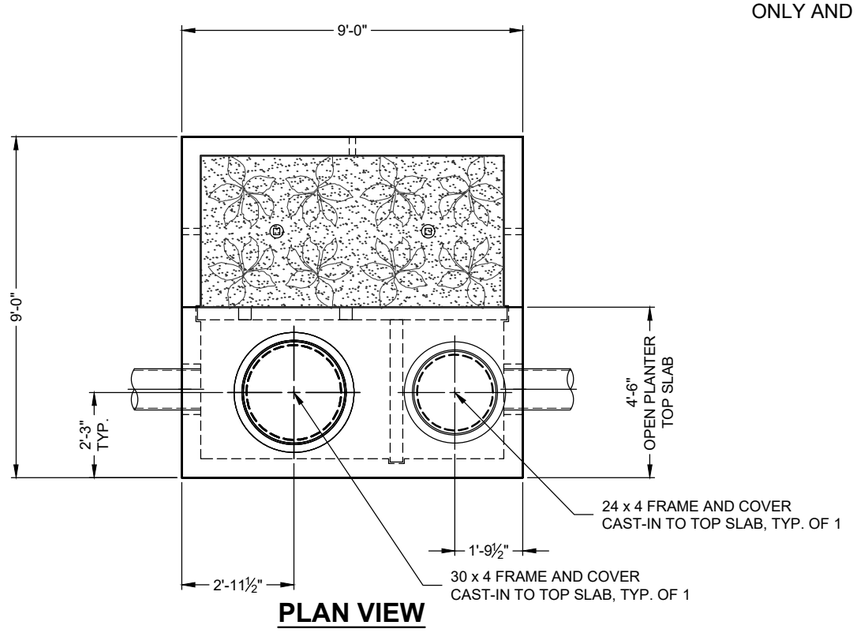
PART 5 – QUALITY ASSURANCE

05.01.00 Warranty

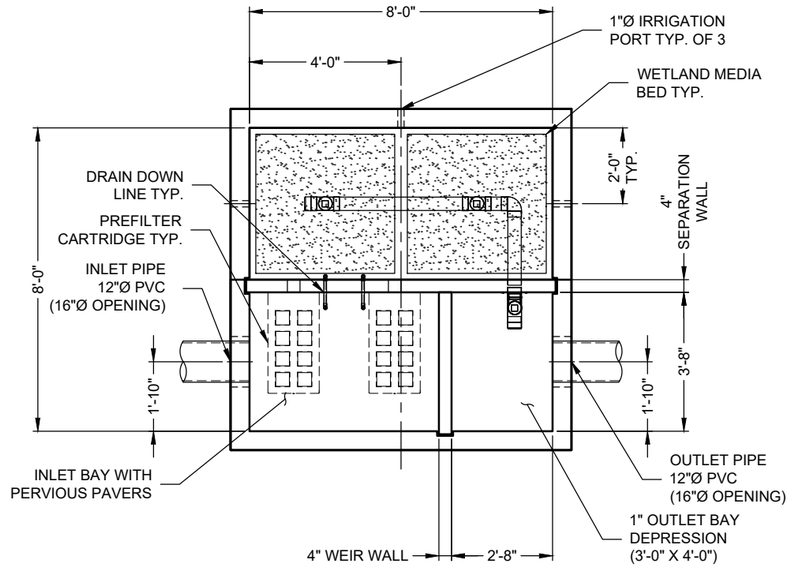
The manufacturer shall guarantee the SCBFD against all manufacturing defects in materials and workmanship for a period of (5) years from the date of delivery to the contractor. The manufacturer shall be notified of repair or replacement issues in writing within the warranty period. The SCBFD is limited to recommended application for which it was designed.

[End of This Section]

THIS DOCUMENT IS FOR INFORMATIONAL PURPOSES
ONLY AND IS NOT A FINAL CONSTRUCTION CONTRACT



PLAN VIEW



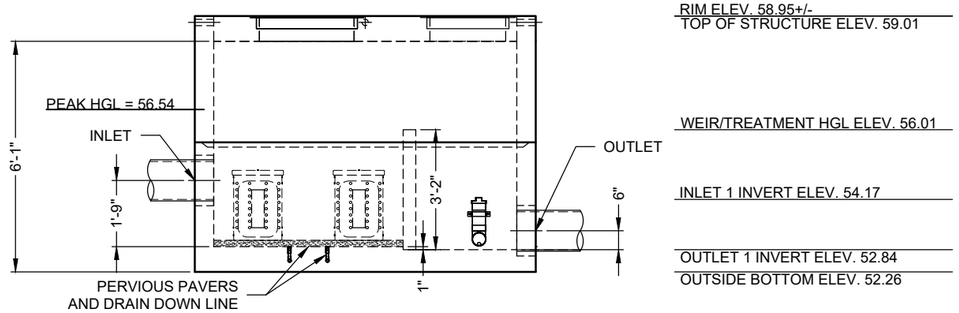
PLAN VIEW
TOP SLAB NOT SHOWN

SITE DESIGN DATA	
WATER QUALITY FLOW (CFS)	0.20
PEAK FLOW RATE (CFS)	4.73
RETURN PERIOD (YRS)	10
MAXIMUM POLLUTANT DENSITY (PREFILTER) (GPM/SF)	2.1
PREFILTER LOADING RATE (GPM/SF)	1.75
WETLAND MEDIA LOADING RATE (GPM/SF)	1.00
MEDIA OPERATING HEAD (FT)	2.94
SURFACE LOADING	PEDESTRIAN
GROUNDWATER ELEVATION*	52.84

*GROUNDWATER ELEVATION IS ASSUMED. EOR TO PROVIDE IF KNOWN

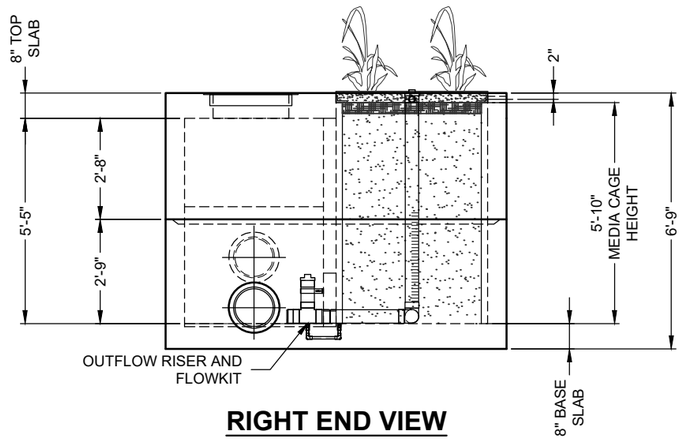
STRUCTURE DETAILS	
NUMBER OF DELIVERED PIECES (COMPLETEY ASSEMBLED - RISERS TO GRADE NOT NEEDED)	1
MAXIMUM FOOTPRINT	9.00' x 9.00'
DELIVERED HEAVIEST PICK*	18825 LB.
TOP SECTION WITH CASTING FRAMES CAST-IN	11750 LB.
BASE SECTION	15250 LB.
SEPARATION WALL	2200 LB.
WEIR WALL	600 LB.
INTERNAL COMPONENTS	775 LB.

* HEAVY PICK WEIGHT IS COMPRISED OF ALL PIECES COMPLETELY ASSEMBLED



ELEVATION VIEW*

*MEDIA CASTINGS, IF REQUIRED, NOT SHOWN



RIGHT END VIEW

RVRSD
6505 / 000000
LAYOUT 4
MWS-L-8-8-L
12.37 TS
1.35 TIW

MARK	DATE	REVISION DESCRIPTION	BY

CONTECH ENGINEERED SOLUTIONS
A QUIKRETE® COMPANY
12901 SE 97th Avenue, Clackamas, OR 97015
800-548-4667 503-240-3393 800-561-1271 FAX

CONTECH
PROPOSAL
DRAWING

MODULAR WETLANDS MWSL0808OP - 838736-010
MCDONALDS BUENA PARK
BUENA PARK, CA
SITE DESIGNATION: MWSL0808

PROJECT No.:	SEQ. No.:	DATE:
838736	010	10/07/25
DESIGNED: JTEN	DRAWN: JP	
CHECKED: JTEN	APPROVED: JTEN	
SHEET NO.: 1 OF 1		

PACKAGED STORM PUMP LIFT STATION

MCDONALDS - 6201 LINCOLN AVENUE, BUENA PARK

Furnish and install complete pre-packaged duplex Lift Station model **#PSI-KIM071025** as manufactured by Pacific Southwest Industries (national phone # 800-358-9095)

This pre-packaged Lift Station shall incorporate a quick removal system manufactured by the pump manufacturer. The pump(s) shall be guided to the discharge base elbow by a single or double guide rail and shall be stainless steel and shall extend from the discharge base elbow to the upper guide bracket mounted on 1-5/8" x 1-5/8" channel strut just below the basin cover. Stainless steel lifting chain or cable shall be supplied and properly installed to remove the pump from the wet well. The internal discharge piping shall be completely pre-plumbed with pressure rated schedule 40 or 80 PVC pipe as indicated and extend 12" beyond the wet well and valve vault side wall for contractor connection to the force main piping. The pump(s) discharge piping shall have a check and ball valve installed on each pump discharge. The Lift Station shall include control panel and level control floats. The control panel shall be suitable for surface mounting or free standing on a leg kit if the site conditions require it.

PUMP(S):

Furnish and install Liberty series LE submersible pump(s). Each unit shall be capable of handling residential sewage with 2" solid handling capability. The submersible pumps shall produce the proper head and flow as indicated in this detail. The pump(s) shall be designed so that the shaft power required (BHP) shall not exceed the motor rated output throughout the entire operating range of the pump performance curve. A two-year warranty "out of the box" shall be standard.

CONSTRUCTION:

Each centrifugal sewage pump shall be the certified Series LE SERIES pumps as manufactured by Liberty Pumps, Bergen NY. The castings shall be constructed of class 25 cast iron. The motor housing shall be oil filled to dissipate heat. Air filled motors shall not be considered equal since they do not properly dissipate heat from the motor. All mating parts shall be machined and sealed with a Buna-N O-ring. All fasteners exposed to the liquid shall be stainless steel. The motor shall be protected on the top side with sealed cord entry plate with molded pins to conduct electricity eliminating the ability of water to enter internally through the cord. The motor shall be protected on the lower side with a unitized ceramic/carbon seal with stainless steel housings and spring. The upper and lower bearing shall be capable of handling all radial and thrust loads. The pump shall be furnished with stainless steel handle.

ELECTRICAL POWER CORD:

The submersible pump shall be supplied with 35 feet of multi-conductor power cord. It shall be cord type SJTW (1-PH), capable of continued exposure to the pumped liquid. The power cord shall be sized for the rated full load amps of the pump in accordance with the National Electric Code. The power cable shall not enter the motor housing directly but will conduct electricity to the motor by means of a water tight compression fitting cord plate assembly, with molded pins to conduct electricity. This will eliminate the ability of water to enter internally through the cord, by means of a damaged or wicking cord.

MOTORS:

Single phase motors shall be oil filled, permanent split capacitor, and class B insulated NEMA B design rated for continuous duty. Three phase motors shall be oil filled; class B insulated NEMA B design, rated for continuous duty. At maximum load the winding temperature shall not exceed 130 degrees C unsubmerged. Since air filled motors are not capable of dissipating heat, they shall not be considered equal. Single phase pump motors shall have an integral thermal overload switch in the windings for protecting the motor. Three phase motors shall be used with an appropriate controller with integral overload protection. The capacitor circuit shall be mounted internally in the pump on single phase units.

BEARINGS AND SHAFT:

Upper and lower ball bearings shall be required. The bearings shall be a single ball / race type bearing. Both bearings shall be permanently lubricated by the oil, which fills the motor housing. The motor shaft shall be made of 300 or 400 series stainless steel and have a minimum diameter of .50".

SEALS:

The pump shall have a unitized carbon / ceramic seal with stainless steel housings and spring equal to Crane Type 6A. The motor plate / housing interface shall be sealed with a Buna-N O-ring.

IMPELLER:

The impeller shall be a class 25 iron, with pump out vanes on the back shroud to keep debris away from the seal area. It shall be threaded to the motor shaft.

QUICK REMOVAL SYSTEM:

The pumping unit(s) shall be equipped with quick removal system (QRS). The construction shall be such that the pump(s) will automatically connect to the discharge piping when lowered into place on the discharge connector. There shall be no need for personnel to enter the wet well to accomplish installation or removal of the pump(s). The pumping unit(s) shall be fitted with stainless steel lifting chain(s) of sufficient length and strength to permit the raising and lowering of the unit(s). The chain(s) shall be fastened at the top of the structure near the access opening. The need for a protective coating shall not be required. A sliding guide bracket shall be an integral part of the pumping unit and the pump casing shall have a machined connection with a bracket to connect with the discharge connection. Sealing of the pumping unit to the discharge connection shall be accomplished by a single linear downward motion of the pump with the entire weight of the pumping unit guided by a pawl, thereby wedging the pumping unit tightly against the discharge connector. No portion of the pump shall bear directly on the floor of the sump nor shall a rotary motion of the pump be required for sealing. All fasteners coming into contact with the pumpage shall be stainless steel. Two corrosion resistant guide pipes shall be furnished and installed for each pump to permit raising and lowering of the pump.

FIBERGLASS WET WELL:

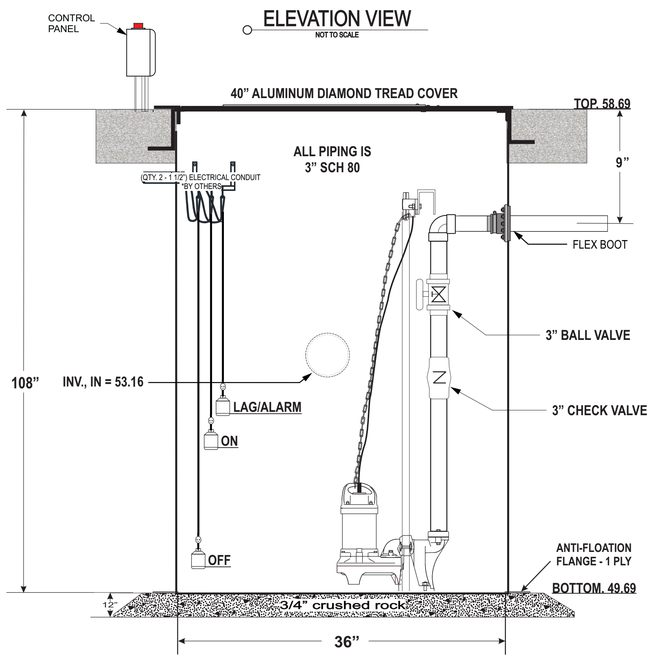
The fiberglass wet well with an anti-flotation flange shall have the proper diameter and depth below the lowest inlet to promote proper cycling while maintaining the rim at grade. The fiberglass wet well shall be manufactured using a process that is filament wound and or chopped spray. The wet well shall be constructed with a anti flotation flange. Lifting lugs shall be required for those wet wells 48 inches in diameter and larger for setting of the wet well. The laminate shall have a Barco hardness of at least 90% of the resin manufactures minimum specified hardness for cured resin on both the interior and exterior surfaces. The minimum wall thickness of the wet well shall not be less than 1/4". Stainless steel studs will be encapsulated in the bottom of the wet well to allow the mounting of the quick removal system. The top rim flange will be a minimum of 2" wide to allow for the installation of the pedestrian rated aluminum cover to the rim flange or shall be rimless if the cover is specified for H20 off street locations. The wet well shall be provided with "unseal" fittings that can be installed in the field to insure proper elevation of the inlet, vent, and electrical on the side of the wet well. The wet well will house 2 - swing check valves, and 2 – shut off valves.

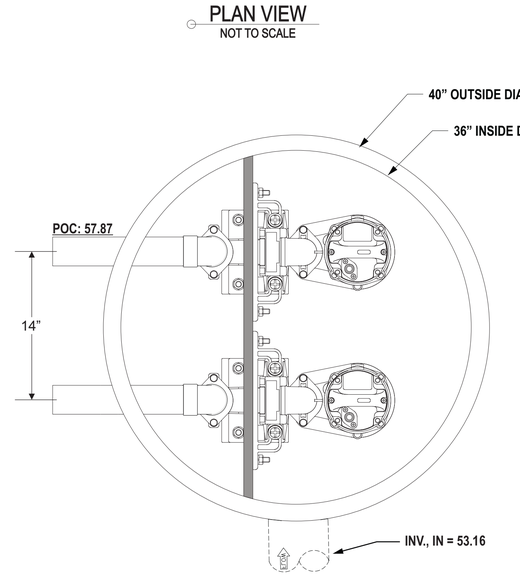
COVER(s)

The wet well cover shall always be gasketed and bolted to the rim flange of the fiber glass tank using 7/16" stainless steel hex head bolts unless the cover is to be in a H20 off street location. The type of material to be used for the cover shall be as indicated on this plan sheet.

DUPLEX ALTERNATING CONTROL PANEL:

The duplex control panel, as a minimum, shall include the appropriate enclosure type for the environment it is to be installed in and should include the following: Motor starters, motor circuit protectors or variable frequency drives (VFD), pump run indicator(s), operation selector switch(es), high water alarm and light, silence switch, dry contact for alarm, numbered terminals for all incoming power, pump motor(s) and level controls. The control panel shall be UL listed 508 or 913.





FLOAT ELEVATIONS	
LAG/ALARM	53.81
ON	53.31
OFF	50.69

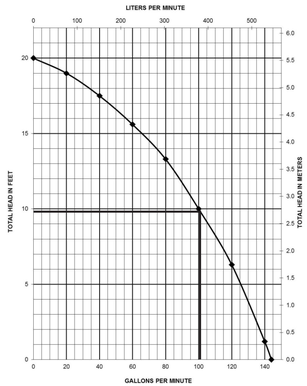
NOTES: :
1. CONDUIT INSTALLED IN FIELD TO CONTROL PANEL- *PROVIDED BY OTHERS-
2. CONDUIT, ELECTRICAL DESIGN , INSTALLATION BY OTHERS, PSI WILL PROVIDE ELECTRICAL RUBBER GROMMETS SHIPPED LOOSE FOR FIELD INSTALLATION BY OTHERS-
3. (QTY 2) 2" CONDUIT ,(1) FOR POWER,(1) FOR LEVEL SENSING
4. *G.C OR OTHERS TO COORIDNATE CONTROL PANEL LOCATION WITH UNDERGROUND ELECTRICAL SERVICE TO FIBERGLASS WET WELL WITHIN SPECIFIC 50 FT CABLE LENGTHS.

PSI Pacific Southwest Industries
ENGINEERED- PUMPS/FLUID HANDLING & DISPOSAL SYSTEMS
PACKAGED LIFT STATION
(800)-358-9095

Liberty Pumps

Pump Specifications

LE40 Series
4/10 HP Submersible Sewage Pump



LE40_PI RS/17/2017

Liberty Pumps

HAZEN-WILLIAMS EQUATION/HEAD LOSS IN WATER PIPE	
$(f) = 0.2083\ (100 / c)^{1.852}\ q^{1.852} / dh^{4.8655}$	
c=	150 HDPE / PVC
q=	101 GPM
dh=	3" SCH 80 = 2.90
FRICTION LOSS PER 100 FT f=	2.85
Velocity (ft/s) =	4.91

LIFT STATION PROFILE & CALCULATIONS						
3" SCH 40 = 3.048 SCH 80 = 2.90						
3" PVC PIPE	(QTY)	20	x	1 FT		20 FT
3" PVC 90 ELBOW	(QTY)	1	x	7.7 FT		7.7 FT
3" PVC 45 BEND	(QTY)	0	x	4.1 FT		0 FT
3" PVC TEE	(QTY)	0	x	16.4 FT		0 FT
3" BALL VALVE	(QTY)	1	x	2 FT		2 FT
3" CHECK VALVE	(QTY)	1	x	20 FT		20 FT
TOTAL EQUIVALENT LENGTH						49.7 FT
FRICTION LOSS PER 100 FT 3" PVC	101 GPM		2.8 FT		PER 100 FT	
FRICTION LOSS 3"	49.7	/	100	x	2.8 FT	1.42 FT
TOTAL DYNAMIC HEAD						
3" FRICTION LOSS						1.42 FT
STATIC HEAD					+	8.18 FT
PERFORMANCE	101 GPM @ 9.60				FT TDH THROUGH 3" PVC LINE	

LIFT STATION PUMP SYSTEM

NOTE: VERIFY ALL ELVEATIONS PRIOR TO FABRICATION. OTHERS TO VERIFY ALL INLET/OUTLET ORIENTATIONS PRIOR TO FABRICATION. OTHERS TO COORDINATE ELECTRICITY TO PUMP CONTROL PANEL. *ALL PIPE OPENINGS AND SEALING SHALL BE COMPLETED IN FIELD BY OTHERS.

PSI Pacific Southwest Industries
ENGINEERED- PUMPS/FLUID HANDLING & DISPOSAL SYSTEMS
18541 COLLIER AVE., LAKE ELSINORE, CA 92530 PH: 800 358-9095

No.	Date	Description

LIFT STATION DETAILS
MCDONALDS
6201 LINCOLN AVENUE, BUENA PARK

Date: 07/10/25
Drawn by: DM
Checked by:
Scale: NTS
Sheet No. 1 OF 1

LSD-1

Attachment H: Operation and Maintenance

Operation & Maintenance (O&M) Plan

Project Name:

McDonald's Buena Park (4-5199)

Prepared for:

McDonald's USA

110 N. Carpenter Street

Chicago, IL 60607

(800) 244-6227

Prepared on:

8/11/2025

Contents

Page No.

Section 1 Project Description and BMP Overview

General Project Attributes and Stormwater Control Measures		
Site Location	6201 Lincoln Avenue, Buena Park, CA 90620	
Project Area (ft^2): 45,045	Number of Dwelling Units: N/A	SIC Code: 5812
Narrative Project Description:	McDonald's USA proposes to construct and operate a new McDonald's restaurant at 6201 Lincoln Avenue, Buena Park, CA 90620. In the existing condition, the project site is Imperial Burger, a fast-food drive-thru restaurant. The area is bounded by Lincoln Avenue to the south, Hoffman Street to the west, multi-family residential to the north, and Buena Park Montessori to the east. There is a screen wall that extends along the north and east property line between project site and neighboring properties. The site is a 1.04-acre property where the site has existing screen walls to the north and east. The northern screen wall is within our property line and is being protected, so a small area of 0.01-acre north of the wall is not being disturbed. Ultimately, a total of 1.03-acre is considered for water quality treatment. Potential run-on was identified from the eastern property through existing wall weep hole was noted. Proposed valley gutter will run east to west to convey run-on to drain to the eastern gutter of Hoffman Street as in existing conditions. The proposed building will be rectangle-oriented north to south with entrances on the south, east faces of the building. The drive-thru approach will be on the eastern end of the site and circulation is counterclockwise. The drive-thru exit will be to the southern end of the site. The building will have a roof-drain system that discharges to the surface of the drive-thru and will therefore be included in drainage calculations. To meet the City of Buena Park's Water Quality requirements, the site has been designed to surface flow storm water runoff into two (2) bioretention basins and two (2) drop inlets fitted with BioClean Catch Basin Filter Inserts for full trash capture. The drop inlets will capture the runoff for the 24-hour 85th percentile storm event and convey it to one	

General Project Attributes and Stormwater Control Measures	
	(1) modular wetland system (MWS). The bioretention basins will infiltrate treated flows and water can pond up to 6" before it enters overflow device and routed to the MWS. Treated flows and overflow from the MWS will be pumped through a proposed parkway drain to the eastern gutter of Hoffman Street. During storm events larger than the 85th percentile storm event, runoff will overflow the proposed MWS via bypass weir and be routed to a sump pump. The pump will discharge the flows to a proposed parkway drain to the eastern gutter of Hoffman Street. Land use at the proposed site will include indoor food preparation, cooking, indoor eating area, a drive-thru, and improvements to the surface parking and landscaping design. A covered trash enclosure is proposed at the northwestern corner of the site. Expected waste will be food waste, grease from cooking, leaks from vehicles, landscape waste, trash, and debris. Ownership and maintenance of the site are all encompassed under McDonald's USA.
Project-specific Source Control BMPs	Our site is not suitable for infiltration BMPs requiring a 10 ft groundwater separation as they would need to be on surface, very shallow, and therefore have very low infiltration capacity. We are unable to meet the full Design Capture Volume (DCV) (2,549 cu-ft) and meet 5 ft groundwater separation with the proposed site, so we propose to treat to the maximum extent feasible volume for our site, which is about 1,213 cu-ft total between two (2) bioretention areas without underdrains. The remaining 1,336 cu-ft of the DCV will be treated by one (1) Modular Wetland System (MWS), a proprietary vegetated biotreatment system. The proposed MWS will be sized to provide treatment for the 85th percentile storm.
Summary of Drainage Patterns	In the existing condition, storm water runoff surface flows from the southeastern corner to the northwestern corner of the site towards the existing gutter of Hoffman Street. Runoff then flows north to the intersection of Hoffman Street and San Marco Circle enters the southeastern public catch basin, into the public storm drain system, and is conveyed to the Coyote Creek. Ultimately discharging into the San Gabriel River Reach 1, the San Gabriel River Estuary, and the San Pedro Bay Near/Off Shore Zones.

General Project Attributes and Stormwater Control Measures	
Summary of Hydrologic Source Controls	N/A
Structural Treatment and Hydromodification BMPs	N/A

BMP ID	BMP Type	Narrative Description	Location	Other Considerations
BIO-1	Bioretention Basin (INF-3)	Above-ground 3 ft deep bioretention basin. Receives flow from DMA 2.	Southwest corner of project near the Lincoln Ave and Hoffman St intersection	Overflow outlet is above gravel layer to provide retention/nutrient treatment.
BIO-2	Bioretention Basin (INF-3)	Above-ground 3.5 ft deep bioretention basin. Receives flow from DMA 3.	West side of project, along Hoffman St	Overflow outlet is above gravel layer to provide retention/nutrient treatment.
MWS-1	Properietary Biotreatment (BIO-7)	Proprietary pre-treatment device located downstream of bioretention basin. Receives flow from DMA 1, 2, 3, and 4..	Northwest of project, along Hoffman St	Catch basins are fitted with BioClean Catch Basin Filter Inserts for full trash capture as pretreatment.

Section 2 Personnel, Documentation, and Reporting

2.1 Maintenance Roles and Responsibilities

The roles related to O&M of the BMPs are defined as follows:

- ***Facility Owner*** *– The Facility Owner is the party who is ultimately responsible for the functionality of all BMPs. The maintenance agreement (Attachment 2) identifies the facility owner for each BMP, including the timing of any ownership transitions.*
- ***Responsible Party*** *– The Responsible Party is the party that shall have direct responsibility for the O&M of the BMPs. This party shall be the designated contact with inspectors and lead maintenance personnel. The Responsible Party shall sign self-inspection reports and any correspondence regarding the verification of inspections and required maintenance. The Responsible Party will establish a system to delegate general inquiries to the appropriate maintenance personnel concerning the operation and maintenance of the BMPs. The Responsible Party reports directly to the Facility Owner and operates and manages the BMPs on the Facility Owner's behalf.*
- ***Designated Emergency Respondent*** *– The Designated Emergency Respondent is the party responsible for directing activities and communications during emergencies such as broken irrigation pipes, landslides, hazardous spill responses etc., that would require immediate response should they occur during off-hours. It is the responsibility of the Designated Emergency Respondent to communicate the emergent situation with the Responsible Party as soon as possible.*
- ***Key Maintenance Personnel*** *– Key Maintenance Personnel are the designated lead field manager(s) or supervisor(s) who directly oversee and delegate the maintenance activities, maintain the scheduling, and coordinate activities between all personnel. These tend to change more often than other personnel over time, so their names do not necessarily need to be included in the O&M Plan. However, they must be properly trained as recorded in the training logs (Section 2.2).*

The table below lists the roles for this project. This table must be updated whenever changes occur.

Role	Name (Title and Affiliation)	Phone Number	Address	Email Address
Facility Owner				
Responsible Party				
Designated Emergency Respondent				

2.2 Qualification and Training Requirements for Personnel

Many of the activities presented in this O&M plan can be completed by personnel with basic landscaping and yard maintenance skills and project-specific orientation. However, there are activities that require a more experienced skillset to identify and remediate potential issues that could compromise the functionality of each BMP. The Responsible Party shall exercise discretion in determining the skillset required to complete each task.

Activities that can typically be completed by maintenance personnel with basic training and/or qualifications include:

- General landscaping activities (pruning, weeding, and raking)
- Routine sediment, trash and debris removal;
- Filling in minor scour or erosion areas, or replacing rip rap that has become displaced; and
- Watering or irrigation, as necessary.

Activities that typically require maintenance personnel with specialized qualifications, training, and/or engineering oversight include:

- Inspection and/or repair of inflow and outflow structures;
- Inspection and/or repair of underground elements;
- Inspection, diagnosis, and remediation of significant erosion issues potentially compromising function and/or structural stability; and

Maintenance personnel who have identified a potential major issue with any facility should contact the designated key maintenance personnel for the facility immediately.

Training must be provided for all personnel performing maintenance tasks on or providing maintenance oversight of structural BMPs. The table below provides the personnel and relevant training topics.

Training Logs contained in Attachment 3 should be used to document training of maintenance personnel.

Training Topic	Responsible Party	Designated Emergency Respondent	Key Maintenance Personnel
Proper Maintenance of all BMP components	X		X
Identification and clean-up procedures for spills and overflows	X	X	X
Safety concerns when maintaining devices and responding to emergency situations	X	X	X

2.3 Maintenance Agreements and Funding Mechanisms

The proposed development and BMPs will be maintained by McDonald's USA through a lease agreement with the property owner. The operation and maintenance costs of the BMPs will be incorporated with the operating budget for the restaurant.

2.4 Record Keeping Requirements

Documentation of site conditions, maintenance activities performed, and any other remaining maintenance required is necessary during each inspection/maintenance visit. Inspection and maintenance records shall be retained in an accessible, secure location for the life of the facility, and not less than 10 years.

The following documentation mechanisms and procedures have been established for this O&M Plan:

- **Training Logs:** Personnel must document training activities as part of implementing this O&M Plan. Attachment 3 contains a sample training log.
- **Inspection and Routine Maintenance Logs:** Maintenance personnel are required to maintain logs of inspection and maintenance activities. Attachment 4 contain inspection and maintenance logs.
- **Rehabilitative and Corrective Maintenance Log and Reporting:** Rehabilitation and corrective maintenance activities should be documented at a degree of detail that is commensurate to the complexity/significance of the activity. Any significant changes to the BMP designs that arise from rehabilitation/corrective maintenance will be documented via an update to the Project WQMP and as-built drawings. Corrective maintenance that does not result in design changes will be documented as a special entry in the maintenance logs to provide pertinent details of that rehabilitative or corrective maintenance activity.

2.5 Required Permits Associated with Maintenance Activities

No additional permits needed for the implementation, operation, and maintenance of the BMPs

2.6 Self-Reporting Requirements

No additional self-reporting requirements needed by jurisdiction.

2.7 City Inspections

The City of Buena Park may conduct a site inspection to evaluate compliance with the Project WQMP, at any time, in accordance with Section 13.32.040 of the City of Buena Park municipal code.

2.8 Electronic Data Submittal

This document, along with the attachments, shall be provided to the City or County in PDF format. Autocad files and/or GIS coordinates of BMPs shall also be submitted to the City/County.

Section 3 Inspection and Maintenance Activities

This section identifies the inspection and O&M activities for each BMP incorporated into the project. Section 3.1 and 3.2 contain common maintenance activities and frequencies associated with Source Control BMPs and HSCs, respectively. Section 3.3 contains individual tables for each structural LID or hydromodification BMP with an explanation of the various types of maintenance activities associated with these BMPs.

3.1 Inspection and Maintenance of Source Control BMPs

Source Control BMP	Activity	Frequency
N1. Education for Property Owner's Tenants and Occupants	Distribute appropriate materials to owners, tenants, and/or occupants via contract language, mailings, website, or meetings.	Information provided to owners and tenants upon sale or lease. Reminders sent or posted as needed.
	Check www.ocwatersheds.com and/or City website for updated educational materials.	Annually
N2. Activity Restrictions	The Project will establish the following policies prohibiting activities during operations: • Prohibit discharge of fertilizer, pesticide, or animal waste to street or storm drain. • Prohibit blowing or sweeping of debris (leaf litter, grass clippings, litter, etc.) into street or storm drain. • Require dumpster lid to be closed at all times. • Prohibit discharge of paint or masonry waste to street or storm drain • Prohibit vehicle washing, maintenance, or repair on premises.	Information provided to owners and tenants upon sale or lease. Reminders sent or posted as needed.

Source Control BMP	Activity	Frequency
N3/S4. Common Area Landscape Management, Efficient Landscape Design, and Efficient Irrigation	Check that fertilizer and pesticide usage is in accordance wiN1th the Integrated Pest Management Program. Adjust, if needed.	Annually
	Check the irrigation system water budget to ensure efficiency targets are being met and the system is in good condition. Adjust/repair irrigation system and controllers, if needed.	Annually prior to irrigation system activation
	Check landscaping for presence of invasive species and remove, if needed.	Annually
N11. Common Area Litter Control	Remove trash from around trash enclosure, inspect to ensure lids closed, structurally sound, and not overflowing. Repair or replace, as needed.	Monthly
	Inspect common area for litter and trash disposal violations by homeowners and reporting to the HOA or responsible party for investigation. Remove litter, as needed.	Weekly
N14. Common Area Catch Basin Inspection	Remove trash and debris from catch basins and grates. Check for damage, clogging, and standing water. Repair or mitigate clogging/standing water, as needed.	Four times per year during wet season, including inspection just before the wet season and within 24 hours after at least two storm events >0.5 inches
N15. Street Sweeping Private Streets and Parking Lots	Sweep curb and gutter areas using a vacuum street sweeper. Report any significant or illicit debris in curb/gutter to HOA or responsible party, as needed.	Weekly to Monthly
S1. Provide Storm Drain System Stenciling and Signage	Check that all catch basins in paved areas marked or stenciled with "No dumping-Drains to Ocean; No Descargue Basura" language. Replace/repaint markings if faded, damaged, removed, or otherwise illegible.	Annually

Source Control BMP	Activity	Frequency
S2. Design and Construct Outdoor Material Storage Areas	Check outdoor material storage structure to ensure structural stability is sound and that no contact of the stored materials with rainfall or runoff is occurring. Check secondary containment for leaks. Repair leaks or damage, as needed and mitigate, if coming into contact with stormwater.	Twice per year
S3. Design and Construct Trash and Waste Storage Areas	Check that outdoor waste storage structure is consistently covered, that structural stability is sound, and that no run-on or contact of the trash with runoff is occurring. Repair leaks or damage and mitigate if trash coming into contact with stormwater, as needed.	Twice per year
	Check that trash is removed by local waste management contractor on at least a weekly basis for proper disposal.	Weekly
S5. Protect Slopes and Channels and Provide Energy Dissipation	Check slopes, channels, riprap and other conveyance or energy dissipation areas for signs of erosion or scour. Replace material, repair channels, replant vegetation, and/or redesign, as needed for signs of erosion/scour.	Four times per year during wet season, including inspection just before the wet season and within 24 hours after at least two storm events >0.5 inches
S9. Outdoor Processing Areas	Check that all wash water, leaks, and spills are prevented from possible contact with rainwater. Check berms, drop inlets, and other control devices for structural soundness and effectiveness. Maintain or replace any failed structural measures, as needed.	Four times per year during wet season, including inspection just before the wet season and within 24 hours after at least two storm events >0.5 inches
	Remove trash and debris and sweep outdoor processing areas	Monthly

Source Control BMP	Activity	Frequency
S10. Equipment Wash Areas	Check that all wash water, leaks, and spills are prevented from possible contact with rainwater. Check berms, drop inlets, and other control devices for structural soundness and effectiveness. Maintain or replace any failed structural measures, as needed.	Four times per year during wet season, including inspection just before the wet season and within 24 hours after at least two storm events >0.5 inches
	Remove trash and debris and sweep equipment wash areas	Monthly
S13. Wash Water for Food Preparation Areas	Check that signs are present prohibiting the discharge of wash water from food preparation areas (including outdoor) to areas draining to a storm drain, is prohibited.	Four times per year during wet season, including inspection just before the wet season and within 24 hours after at least two storm events >0.5 inches
	Check that all wash water, leaks, and spills are prevented from possible contact with rainwater. Check sinks, berms, and other structures for structural soundness and effectiveness. Maintain or replace any failed structural measures, as needed.	Four times per year during wet season, including inspection just before the wet season and within 24 hours after at least two storm events >0.5 inches
	Remove trash and debris and sweep outdoor food preparation areas	Weekly

3.2 Inspection and Maintenance of Hydrologic Source Controls

HSCs	Activity	Frequency
N/A		

3.3 Inspection and Maintenance of Structural LID and Hydromodification BMPs

The section is organized by type of structural LID or hydromodification BMP with separate tables for each BMP type included in the project. The section identifies four categories of activities related to O&M of the BMPs:

General Inspections - Evaluations conducted at regularly scheduled intervals to indicate the need for maintenance of structural BMPs.

Routine Maintenance Activities – Activities conducted at regularly scheduled intervals to sustain long-term performance of each BMP, including inspections and normal upkeep.

Corrective (Major) Maintenance Activities – Includes activities conducted to replace or rehabilitate system components at the end of their usable life as well as activities conducted to resolve major issues that are not anticipated.

Emergency Response Activities – Activities related to emergencies, primarily concerning spills, which may require immediate action and notifications (Section 3.4).

BMP ID	BMP Type	Reference Maintenance Table
BIO-1	Bioretention Basin (INF-3)	INF-3 (Page 11-12)
BIO-2	Bioretention Basin (INF-3)	INF-3 (Page 11-12)
MWS-1	Proprietary Biotreatment (BIO-7)	Manufacturer O&M Manual (Attachment 4)

INF-3 Bioretention Without Underdrain	
Activity	**Frequency**
GENERAL INSPECTIONS	
Remove trash and debris	Four times per year during wet season, including inspection just before the wet season and within 24 hours after at least two storm events ≥ 0.5 inches.
Repair eroded facility areas	
Inspect and maintain access roads	
Inspect and resolve areas of standing water	
Remove minor sediment in facility bottom	
Provide vector control if needed	
Identify any needed corrective maintenance that will require site-specific planning or design	
ROUTINE MAINTENANCE	
Vegetation	
Irrigate as recommended by a landscape professional, typically for the first 3 years to establish vegetation	As needed
Remove undesirable vegetation	Four times per year during wet season, including inspection just before the wet season.
Reseed or replant areas of thin or missing vegetation	Annually
Mulch	
Remove and replace mulch in areas where significant sediment (>1 inch) has accumulated	Annually
Add an additional 1-2 inches of mulch; replace any mulch that is removed	Annually
Media Layer	
Scarify media to promote infiltration while removing mulch	Annually
Replace top 3-6 inches of media layer and replace vegetation	Estimated every 10 years (highly site specific)
Replace full depth of media and replace vegetation	Estimated every 30 years (highly site specific)
Inflow, Underdrain and Outflow Structures	

INF-3 Bioretention Without Underdrain	
Activity	**Frequency**
Check energy dissipation function and add riprap	Four times per year during wet season, including inspection just before the wet season.
Inspect inlets and outlets and remove accumulated sediment	Four times per year during wet season, including inspection just before the wet season.
Flush underdrain	As needed
Repair structural damage to inlets, outlets, and underdrain	As needed
CORRECTIVE (MAJOR) MAINTENANCE	
For the adaptable configuration, utilize results of downtown observations to determine the need for adjustment of the outlet structure (i.e., uncapping closed underdrain)	Based on twice-yearly drawdown observations following events 0.5 inch or larger
Prepare documentation of issues and resolutions for review by appropriate parties; modify WQMP if needed.	Before major maintenance
Document major maintenance activities; record modified WQMP and as-built plan set if needed	After major maintenance
Take photographs before and after from the same vantage point	Before and after

BIO-5/7 Proprietary Biotreatment	
Activity	**Frequency**
GENERAL INSPECTIONS	
Remove trash and debris	Four times per year during wet season, including inspection just before the wet season and within 24 hours after at least two storm events ≥ 0.5 inches.
Identify excess erosion or scour	
Identify sediment accumulation that requires maintenance	
Inspect during storm event, when possible, to estimate treatment capacity and determine if premature bypass is occurring	
Evaluate plant health and need for corrective action	
Identify any needed corrective maintenance that will require site-specific planning or design	
OPERATION AND MAINTENANCE	
• O&M of proprietary BMPs must follow established manufacturer guidelines • O&M of accompanying retention BMPs should follow the guidelines established in the associated fact sheet for that BMP.	

3.4 Emergency Response Plan

In some cases, adverse conditions may occur which could be an imminent threat to human or environmental health or severe damage to infrastructure or property. For example, a spill of hazardous substances in the contributing area to a BMP could cause harmful substances to enter the BMP and be released downstream, affecting environmental and public health. Other emergencies could arise related to the stormwater features or water quality protection, such as landsliding, major erosion, or burst pipes in the tributary area.

In the event of an actual or suspected hazardous material release, the following plan shall take effect.

The primary importance of initial response to an actual or suspected spill will be public safety, control of the source of pollution, and containment of spills that have occurred, as applicable. The table below provides the emergency contact information for hazardous materials spills affecting BMPs.

Name	Phone	When to Report
Local Emergency Response (Fire Department)	911	Immediately
Orange County 24-Hour Water Pollution Problem Reporting Hotline	1-877-897-7455	Immediately
CalOES State Warning Center	1-800-852-7550	Immediately

The first number to call is emergency response (9-1-1), followed by the California Governor's Office of Emergency Services (CalOES), formerly the California Emergency Management Agency (CalEMA). (CalOES) maintains guidance and instructions of what to do in the event of a spill of hazardous substances (http://www.caloes.ca.gov/cal-oes-divisions/fire-rescue/hazardous-materials/spill-release-reporting). This plan is based on the guidance provided by CalOES (CalOES, 2014).

1. If an actual or suspected hazardous material incident exists, maintenance personnel will immediately call 911 and the CalOES State Warning Center (**Error! Reference source not found.**).
2. The Designated Emergency Respondent and Responsible Party assigned to the facility (from Section 2.1) must also be notified of any actual or potential spill.
3. Remediation of contamination in the water quality facility should be handled as a corrective maintenance issue per Section 3.2 of this O&M plan.

In the event that a potential spill is identified prior to it reaching the BMPs, the Designated Emergency Respondent will implement an isolation protocol to prevent the spill from entering the BMP. An inflatable plug, Hazmat Plug, or equivalent device as approved by the Designated Emergency Respondent will be installed within the storm drains or catch basins to block upstream flow from reaching and contaminating the BMP. The temporary plug will be an interim measure until the spill is properly maintained and remediated and the Designated Emergency Respondent has determined the risk to the BMP of contamination no longer exists.

Similar measures should be taken in the event of a landslide, mudslide, or major erosion within the tributary area of the BMP to prevent sediment from damaging the BMP to the extent possible.

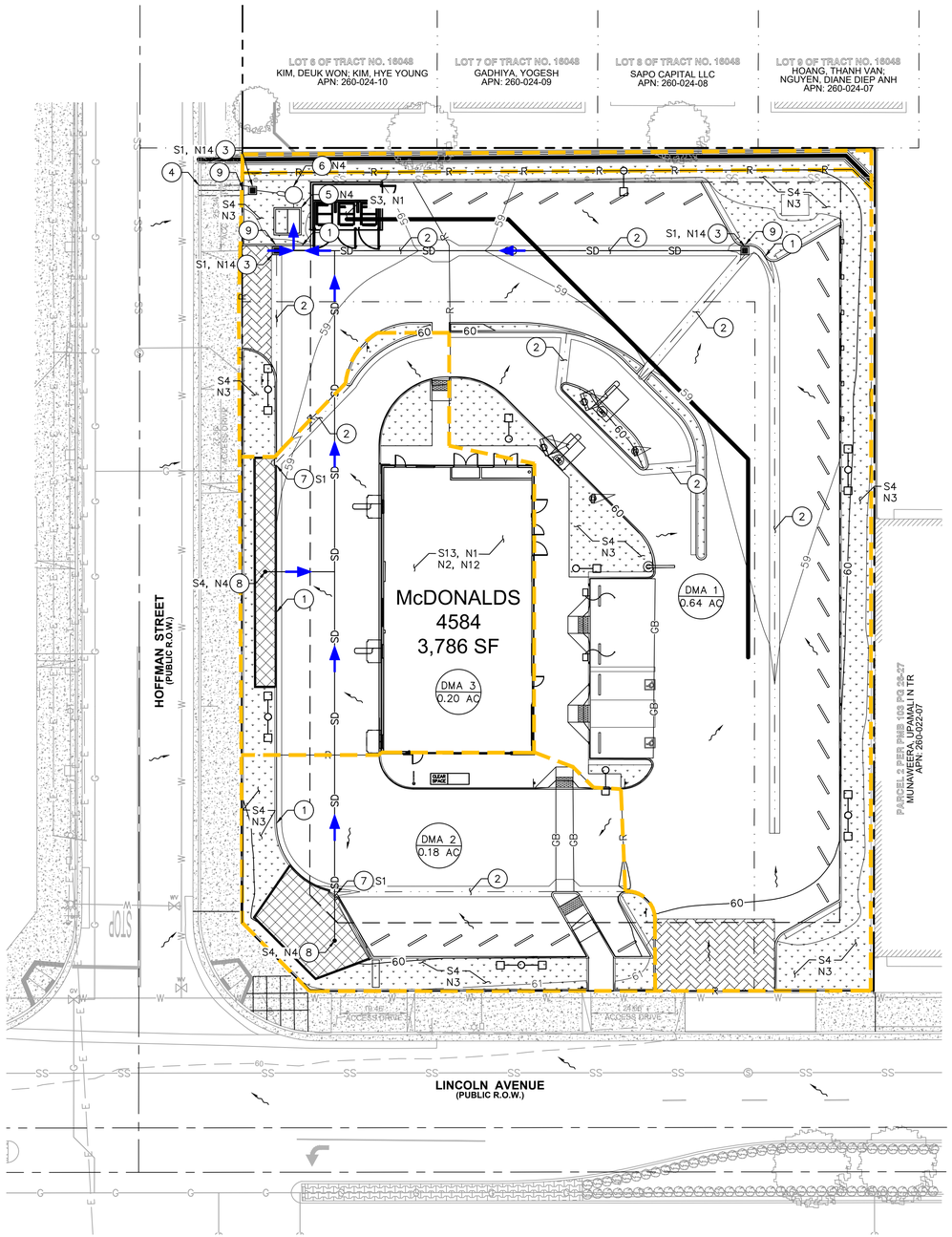
3.5 Vector Control

In addition to the inspection and maintenance activities listed in Section 3, all BMPs shall be inspected for standing water on a regular basis. Standing water which exists for longer than 72 hours may contribute to mosquito breeding areas. Standing water may indicate that the BMP is not functioning properly and proper action to remedy the situation shall be taken in a timely manner.

Elimination of standing water and managing garbage, lawn clippings, and pet droppings can help decrease the present of mosquitoes and flies in the area.

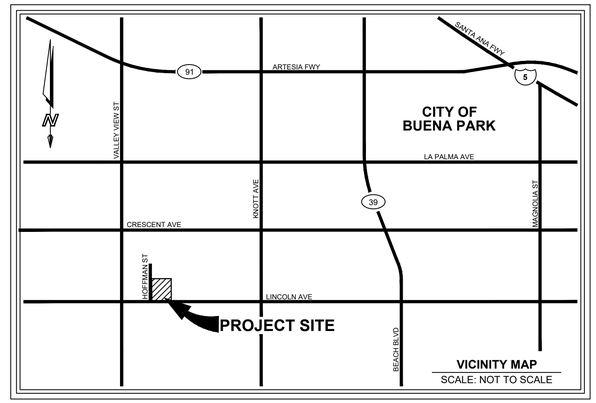
The Orange County Vector Control District may be contacted for more information and support at 714-971-2421 or 949-654-2421 or www.ocvcd.org.

Attachment 1:Photos and Exhibits



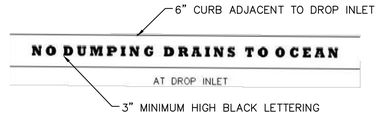
LEGEND

- CENTERLINE
- PROPERTY LINE
- RIGHT–OF–WAY LINE
- EASEMENT / SETBACK LINE
- LOT LINE
- DRAINAGE MANAGEMENT BOUNDARY
- SD — PROPOSED STORM DRAIN PIPE
- GB — GRADE BREAK LINE
- R — RIDGE LINE
- FLOW LINE
- PROPOSED CATCH BASIN
- PROPOSED MODULAR WETLAND SYSTEM
- PROPOSED STORM SUMP PUMP
- DIRECTION OF WATER FLOW
- DIRECTION OF PIPE FLOW
- LANDSCAPE AREA
- BIORETENTION BASIN
- DMA X / X.XX AC — DRAINAGE AREA LABEL



GRADING AND DRAINAGE NOTES

1. PROPOSED CONCRETE CURB AND GUTTER.
2. PROPOSED 3.0' WIDE CONCRETE VALLEY GUTTER.
3. 24" X 24" DROP INLET WITH CATCH BASIN FILTER INSERT FOR TRASH CAPTURE.
4. PROPOSED 3.0' WIDE PARKWAY DRAIN THROUGH CURB FACE.
5. PROPOSED MODULAR WETLAND SYSTEM.
6. PROPOSED PUMP.
7. PROPOSED 2.0' WIDE CURB CUT.
8. PROPOSED BIORETENTION BASIN WITH OVERFLOW DEVICE AND NO UNDERDRAIN.
9. INSTALL "NO DUMPING DRAINS TO OCEAN" STENCIL ON CURB ADJACENT TO CATCH BASIN PER DETAIL HEREON.

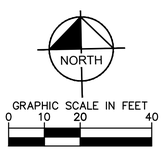


STENCIL DETAIL
N.T.S.

WQMP BMP'S

DMA #	TOTAL DRAINAGE AREA (SF)	IMPERVIOUS AREA (SF)	PERVIOUS AREA (SF)	DESIGN CAPTURE VOLUME (CF)	STRUCTURAL BMP ID#	BMP CLASSIFICATION	BMP PROVIDED	LATITUDE	LONGITUDE	DESIGN FLOW RATE (CFS)	PROVIDED FLOW RATE (CFS)
1	28652	23244	5408	1336	MWS–1	BIOTREATMENT	MWS–L–8–8–V	33.833	–118.025	0.198	0.231
2	7671	5728	1943	725	BIO–1	INFILTRATION	BIORETENTION	33.831	–118.024	–	–
3	8722	7588	1134	488	BIO–2	INFILTRATION	BIORETENTION	33.832	–118.025	–	–
TOTAL	45045	36560	8485	2549	–	–	–	–	–	–	–

SOURCE CONTROL BMPS	
BMP ID	BMP DESCIRPTION
S1	STORM DRAIN STENCILING AND SIGNAGE → ALL SD GRATED INLETS, CURB CUTS (TYP.)
S3	REFUSE / TRASH COLLECTION AREAS
S4	LANDSCAPE / OUTDOOR PESTICIDE USE
S13	WASH WATER CONTROL FOR FOOD PREPARATION AREAS
N1	EDUCATION FOR PROPERTY OWNERS, TENANTS, AND OCCUPANTS (ENTIRE SITE)
N2	ACTIVITY RESTRICTIONS (ENTIRE SITE)
N3	COMMON AREA LANDSCAPE MANAGEMENT
N4	BMP MAINTENANCE
N5	TITLE 22 CCR COMPLIANCE (ENTIRE SITE)
N10	UNIFORM FIRE CODE IMPLEMENTATION (ENTIRE SITE)
N11	COMMON AREA LITTER CONTROL (ENTIRE SITE)
N12	EMPLOYEE TRAINING (ENTIRE SITE)
N14	COMMON AREA CATCH BASIN INSPECTION
N15	STREET SWEEPING PRIVATE STREETS AND PARKING LOTS



SCALE
1" = 20'
WHEN PRINTED AT FULL SIZE (24"X36")

Kimley»Horn
180 EAST OCEAN BLVD, SUITE 1200
LONG BEACH, CA 90802
(562) 549-2200

PREPARED UNDER THE DIRECT SUPERVISION OF:

AMELIA BELTRAN, R.C.E. NO. 87468 DATE: EXP. 09/30/2027

811 Know what's below. Call before you dig.

GRADI! WQMP EXHIBIT A 90602

REVISIONS					CHECKED: AMELIA BELTRAN
NO.	DATE	BY	DESCRIPTION	APP:	RECOMMENDED:
					APPROVED:
					BENCHMARK: BASED ON NAVD 1988 DATUM, AND IS A SET MAG NAIL AND SHINER LOCATED NEAR THE SOUTHWEST CORNER OF PARCEL 1. ELEVATION = 60.41 FEET

REFERENCES:

GP-

REV. NO.

SHEET 1 OF 1

Attachment 2:Training Log Form

TRAINING / EDUCATIONAL LOG

Date of Training/Educational Activity: _____

Name of Person Performing Activity (Printed): _____

Signature: _____

Topic of Training/Educational Activity:

_____

_____

Name of Participant	Signature of Participant

For newsletter or mailer educational activities, please include the following information:

- Date of mailing:
- Number distributed:
- Method of distribution:
- Topics addressed:

If a newsletter article was distributed, please include a copy of it.

Attachment 3:Inspection and Maintenance Log Form

BMP OPERATION & MAINTENANCE LOG

MCDONALD'S BUENA PARK (4-5199)

Today's Date: _____

Name of Person Performing Activity (Printed): _____

Signature: _____

BMP Name or Type (As Shown in O&M Plan)	Brief Description of Operation, Maintenance, or Inspection Activity Performed	Summary of Notable Observations or Outcomes from Activity

[add additional pages, photographs, drawings, notes as needed]

Attachment 4: Vendor O&M Information

CONTECH®
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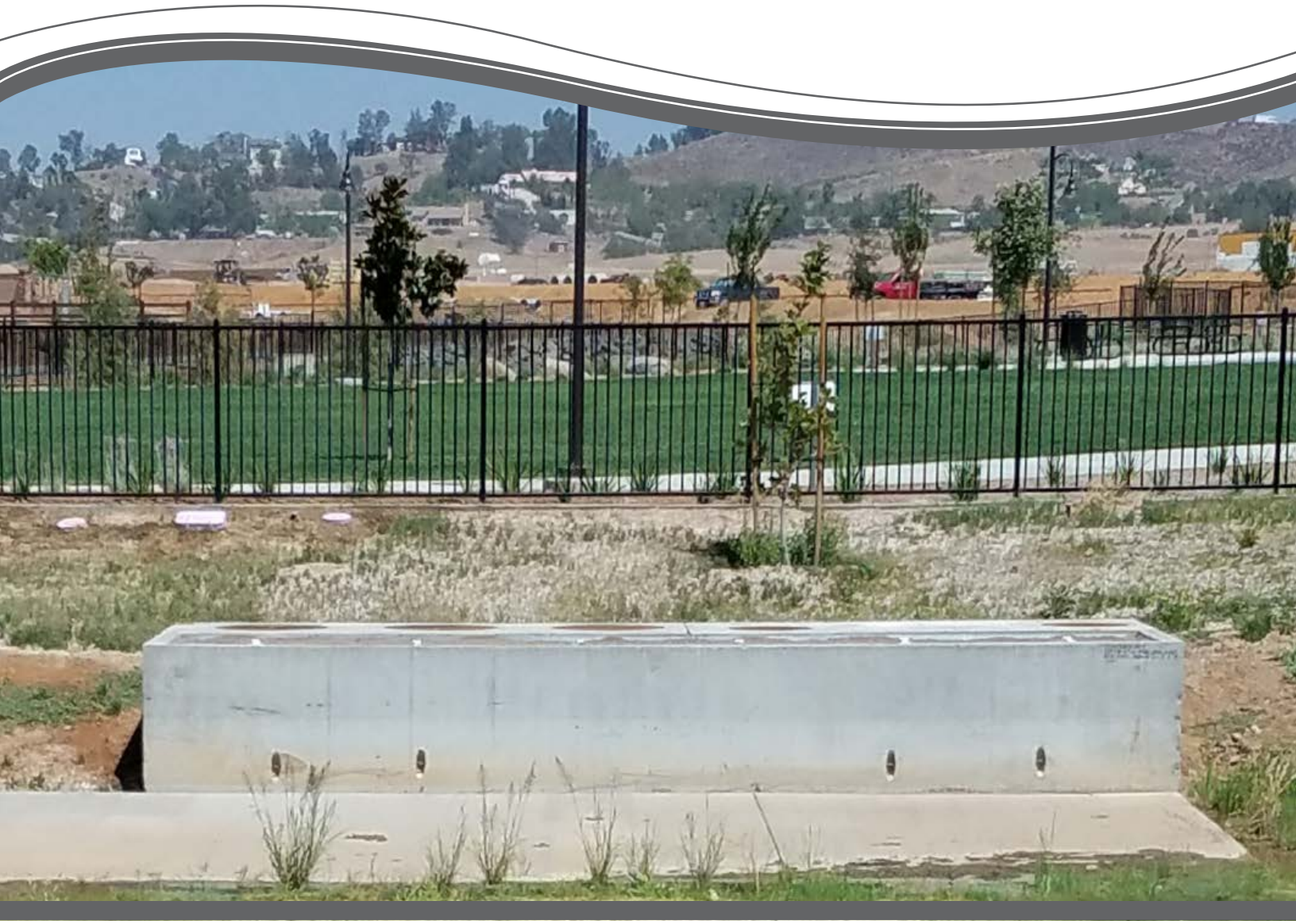
Modular Wetlands® Linear Operatons & Maintenance Manual



MODULAR WETLANDS®

MODULAR WETLANDS LINEAR
OPERATION & MAINTENANCE MANUAL

TABLE OF CONTENTS

OVERVIEW

This operation and maintenance (O&M) manual is for the Modular Wetlands Linear Biofilter (MWL). Please read the instructions and equipment lists closely prior to starting. It is important to follow all necessary safety procedures associated with state and local regulations. Please contact Contech for more information on pre-authorized third-party service providers who can provide inspection and maintenance services in your area. For a list of service providers in your area, please visit www.conteches.com/maintenance.

WARNING

Confined space entry may be required. Contractor to obtain all equipment and training to meet applicable local and OSHA regulations regarding confined space entry. It is the Contractor's or entry personnel's responsibility to always proceed safely.

SAFETY NOTICE & PERSONAL SAFETY EQUIPMENT

Job site safety is a topic and a practice addressed comprehensively by others. The inclusions here are merely reminders to whole areas of Safety Practice that are the responsibility of the Owner(s), Manager(s), and Service Provider(s). OSHA and Canadian OSH, Federal, State/Provincial, and Local Jurisdiction Safety Standards apply on any given site or project. The knowledge and applicability of those responsibilities is the Service Provider's responsibility and outside the scope of Contech Engineered Solutions.

Safety Boots

Gloves

Hard Hat

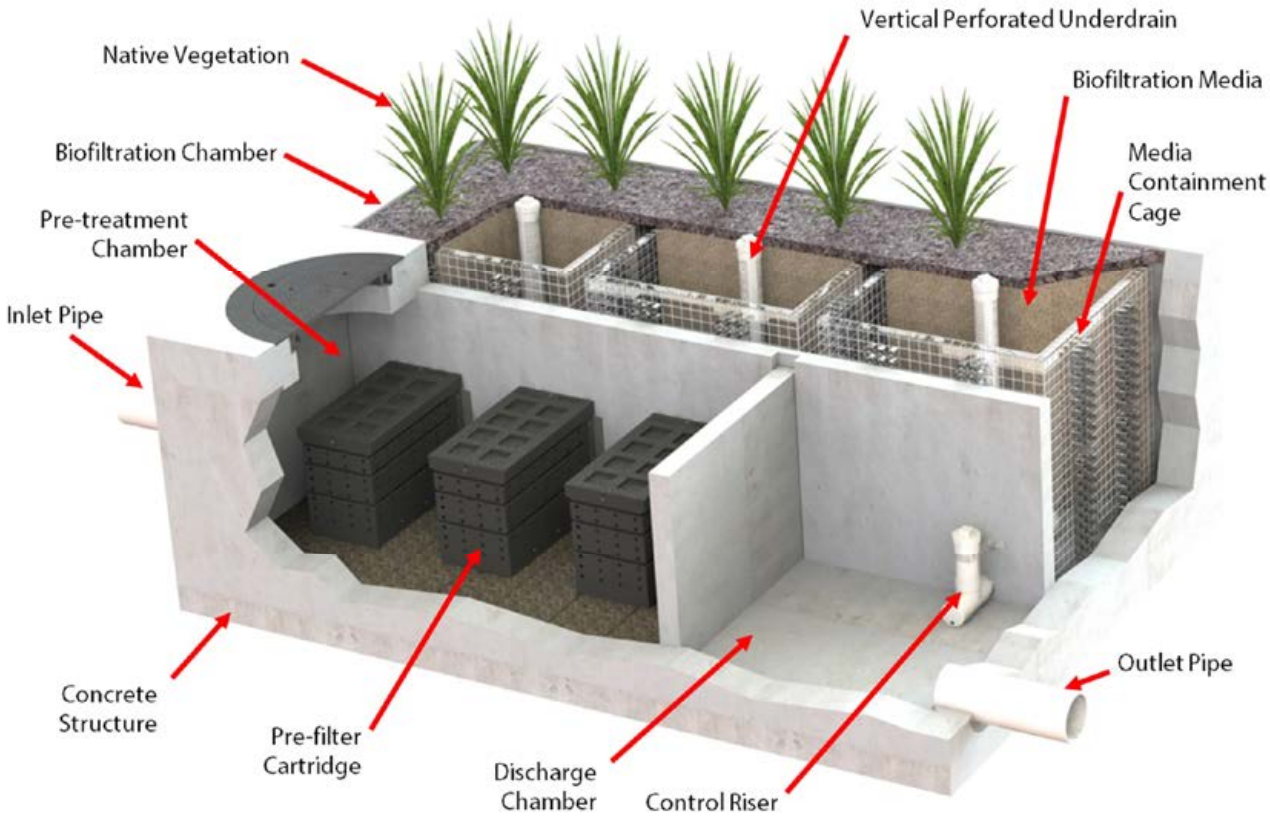
Eye Protection

Maintenance and Protection of Traffic Plan

MODULAR WETLANDS LINEAR COMPONENTS LIST

The MWL system comes in multiple sizes and configurations, including side by side or end to end layouts, both as open planters or underground systems. See shop drawings (plans) for project specific details.

The standard MWL system is comprised of the following components:



INSPECTION SUMMARY & EQUIPMENT LIST

Stormwater regulations require BMPs be inspected and maintained to ensure they are operating as designed to allow for effective pollutant removal and provide protection to receiving water bodies. It is recommended that inspections be performed multiple times during the first year to assess the site-specific loading conditions. The first year of inspections can be used to set inspection and maintenance intervals for subsequent years to ensure appropriate maintenance is provided.

- Inspect pre-treatment, biofiltration, and discharge chambers an average of once every six to twelve months. Varies based on site specific and local conditions.
- Average inspection time is approximately 15 minutes. Always ensure appropriate safety protocol and procedures are followed.

The following is a list of equipment required to allow for simple and effective inspection of the MWL:

Modular Wetlands Linear Inspection Form

Flashlight

Tape Measure

Access Cover Hook

Ratchet
& 7/16" Socket
(if required for older pre-filter cartridges that have two bolts holding the lids on)

INSPECTION & MAINTENANCE NOTES

1. Following maintenance and/or inspection, it is recommended that the maintenance operator prepare a maintenance/inspection record. The record should include any maintenance activities performed, amount and description of debris collected, and condition of the system and its various filter mechanisms.
2. The owner should keep maintenance/inspection record(s) for a minimum of five years from the date of maintenance. These records should be made available to the governing municipality for inspection upon request at any time.
3. Transport all debris, trash, organics, and sediments to approved facility for disposal in accordance with local and state requirements.
4. Entry into chambers may require confined space training based on state and local regulations.
5. No fertilizer shall be used in the biofiltration chamber.
6. Irrigation should be provided as recommended by manufacturer and/or landscape architect. Amount of irrigation required is dependent on plant species. Some plants may not require irrigation after initial establishment.

INSPECTION PROCESS

1. Prepare the inspection form by writing in the necessary information including project name, location, date & time, unit number and other information (see inspection form).
2. Observe the inside of the system through the access covers. If minimal light is available and vision into the unit is impaired, utilize a flashlight to see inside the system and all chambers.
3. Look for any out of the ordinary obstructions in the inflow pipe, pre-treatment chamber, biofiltration chamber, discharge chamber or outflow pipe. Write down any observations on the inspection form.
4. Through observation and/or digital photographs, estimate the amount of trash, debris accumulated in the pre-treatment chamber. Utilizing a tape measure or measuring stick, estimate the amount of sediment in this chamber. Record this depth on the inspection form.
5. Through visual observation, inspect the condition of the pre-filter cartridges. Look for excessive build-up of sediment on the cartridges, any build-up on the tops of the cartridges, or clogging of the holes. Record this information on the inspection form. The pre-filter cartridges can be further inspected by removing the cartridge tops and assessing the color of the BioMediaGREEN filter cubes (requires entry into pre-treatment chamber - see notes previous notes regarding confined space entry). Record the color of the material. New material is a light green color. As the media becomes clogged, it will turn darker in color, eventually becoming dark brown or black. The closer to black the media is the higher percentage that the media is exhausted and in need of replacement.

6. The biofiltration chamber is generally maintenance-free due to the system's advanced pre-treatment chamber. For units which have open planters with vegetation, it is recommended that the vegetation be inspected. Look for any plants that are dead or showing signs of disease or other negative stressors. Record the general health of the plants on the inspection form and indicate through visual observation or digital photographs if trimming of the vegetation is required.

7. The discharge chamber houses the control riser (if applicable), drain down filter (only in California - older models), and is connected to the outflow pipe. It is important to check to ensure the orifice is in proper operating condition and free of any obstructions. It is also important to assess the condition of the drain down filter media which utilizes a block form of the BioMediaGREEN. Assess in the same manner as the cubes in the pre-filter cartridge as mentioned above.

8. Finalize the inspection report for analysis by the maintenance manager to determine if maintenance is required.

MAINTENANCE INDICATORS

Based upon the observations made during inspection, maintenance of the system may be required based on the following indicators:

- Missing or damaged internal components or cartridges.
- Obstructions in the system or its inlet and/or outlet pipes.
- Excessive accumulation of floatables in the pre-treatment chamber in which the length and width of the chamber is fully impacted more than 18".
- Excessive accumulation of sediment in the pre-treatment chamber of more than 6" in depth.
- Excessive accumulation of sediment on the BioMediaGREEN media housed within the pretreatment cartridges. When media is more than 85% clogged, replacement is required. The darker the BioMediaGREEN, the more clogged it is and in need of replacement.
- Excessive accumulation of sediment on the BioMediaGREEN media housed within the drain down filter (California only - older models).
- Overgrown vegetation.

MAINTENANCE SUMMARY & EQUIPMENT LIST

The time has come to maintain your MWL. All necessary pre-maintenance steps must be carried out before maintenance occurs. Once traffic control has been set up per local and state regulations and access covers have been safely opened, the maintenance process can begin. It should be noted that some maintenance activities require confined space entry. All confined space requirements must be strictly followed before entry into the system. In addition, the following is recommended:

- Prepare the maintenance form by writing in the necessary information including project name, location, date & time, unit number and other info (see maintenance form).
- Set up all appropriate safety and maintenance equipment.
- Ensure traffic control is set up and properly positioned.
- Prepared pre-checks (OSHA, safety, confined space entry) are performed.
    - A gas meter should be used to detect the presence of any hazardous gases prior to entering the system. If hazardous gases are present, do not enter the vault. Following appropriate confined space procedures, take steps such as utilizing a venting system to address the hazard. Once it is determined to be safe, enter the system utilizing appropriate entry equipment such as a ladder and tripod with harness.

The following is a list of equipment required for maintenance of the MWL:

Modular Wetlands Linear Maintenance Form

Flashlight

Access Cover Hook

Ratchet
& 7/16" Socket
(if required for older pre-filter cartridges that have two bolts holding the lids on)

Vacuum Assisted Truck with Pressure Washer

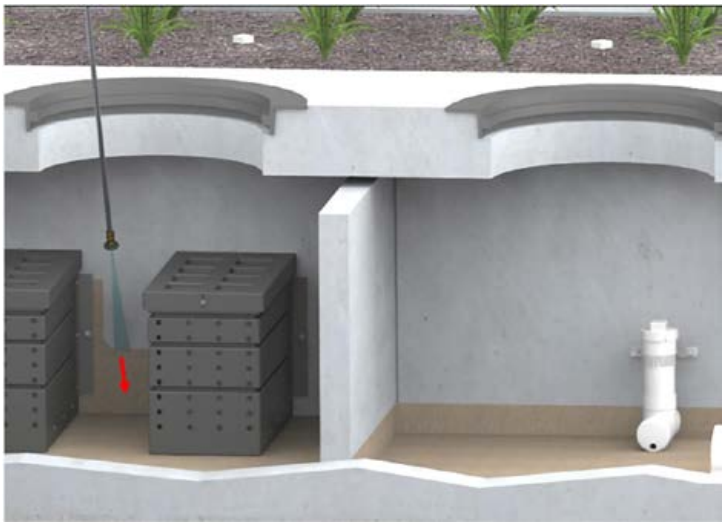
Replacement
BioMediaGREEN
(If Required)

(order BioMediaGREEN from Contech's Maintenance Team members at https://www.conteches.com/maintenance)

MAINTENANCE INSTRUCTIONS

1. ACCESS COVER REMOVAL

Upon determining that the vault is safe for entry, remove all access cover(s) and position the vacuum truck accordingly.



2. PRESSURE WASH SYSTEM CHAMBERS

With the pressure washer, spray down pollutants accumulated on the walls and floors of the pre-treatment and discharge chambers. Then wash any accumulated sediment from the pre-filter cartridge(s).

3. VACUUM SYSTEM CHAMBERS

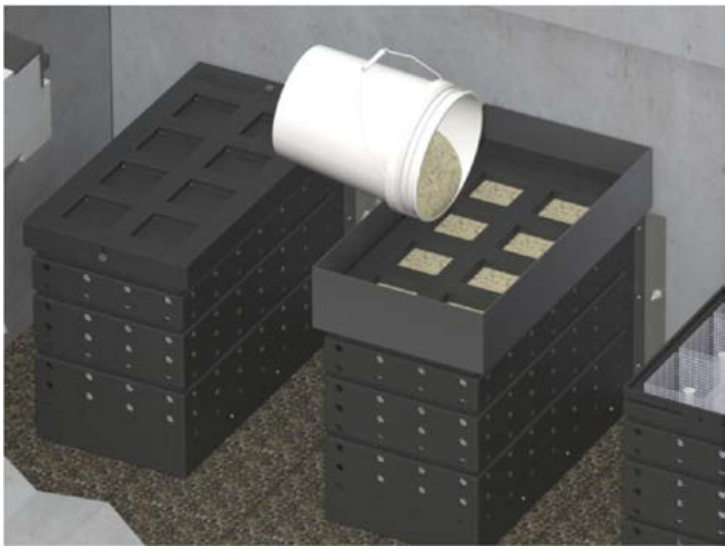
Vacuum out pre-treatment and discharge chambers and remove all accumulated pollutants including trash, debris, and sediments. Be sure to vacuum the pre-treatment floor until the pervious pavers are visible and clean. **(MWL systems outside of California may or may not have pervious pavers on the floor in the pre-treatment chamber)** If pre-filter cartridges require media replacement, proceed to **Step 4**. If not, replace the access cover(s) and proceed to **Step 7**.

4. PRE-FILTER CARTRIDGE LID REMOVAL

After successfully cleaning out the pre-treatment chamber, enter the chamber and remove the lid(s) from the pre-filter cartridge(s) by removing the two thumb screws. (Older pre-filter cartridges have two bolts holding the lids on that require a 7/16" socket to remove)

5. VACUUM EXISTING PRE-FILTER MEDIA

Utilize the vacuum truck hose or hose extension to remove the filter media from each of the individual media cages. Once filter media has been sucked out, use a pressure washer to spray down the inside of the cartridge and its media cages. Remove cleaned media cages and place to the side. Once removed, the vacuum hose can be inserted into the cartridge to vacuum out any remaining material near the bottom of the cartridge.



6. PRE-FILTER MEDIA REPLACEMENT

Reinstall media cages and fill with new media from the manufacturer or outside supplier. Manufacturer will provide specification of media and sources to purchase. The easiest way to fill the media cages is to utilize a refilling tray that can also be sourced from the manufacturer. Place the refilling tray on top of the cartridge and fill with new bulk media shaking it down into the cages. Using your hands, lightly compact the media into each filter cage. Once the cages are full (each cartridge will hold five heaping 5gal buckets of bulk media), remove the refilling tray and replace the cartridge top, ensuring fasteners are properly tightened.

7. MAINTAINING VEGETATION

In general, the biofiltration chamber is maintenance-free with the exception of maintaining the vegetation. The MWL utilizes vegetation similar to surrounding landscape areas, therefore, trim vegetation to match surrounding vegetation. If any plants have died, replace them with new ones.

8. INSPECT UNDERDRAIN SYSTEM

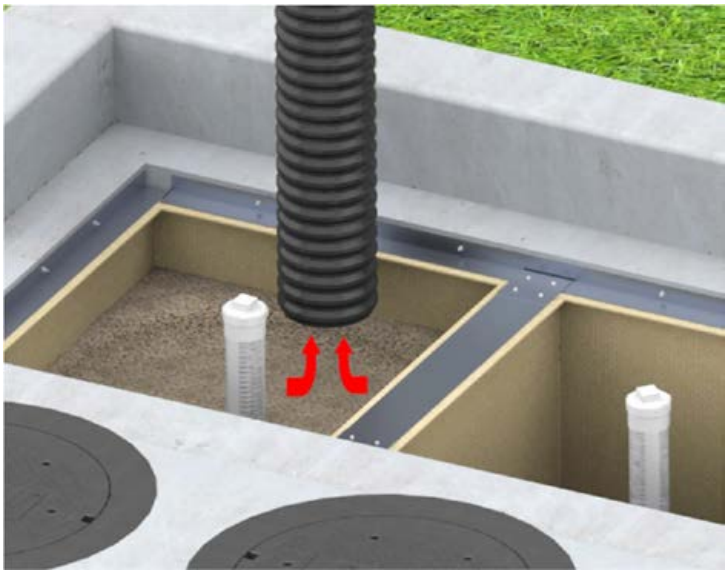
Each vertical under drain on the biofiltration chamber has a removable threaded cap that can be taken off to check for any blockages or root growth. Once removed, a jetting attachment to the pressure washer can be used to clean out the under drain and orifice riser if needed.

9. REPLACE ACCESS COVERS

Once maintenance is complete, replace all access cover(s)

REPLACING BIOFILTRATION MEDIA IF REQUIRED

As with all biofilter systems, at some point the biofiltration media will need to be replaced, either due to physical clogging or sorptive exhaustion (for dissolved pollutants) of the media ion exchange capacity (to remove dissolved metals and phosphorous). The general life of this media is 10 to 20 years based on site specific conditions and pollutant loading, so replacing the biofiltration media should not be a common occurrence. In the event that the biofiltration media requires replacement, contact one of Contech's Maintenance Team members at https://www.conteches.com/maintenance to order new biofiltration media. The quantity of media needed can be determined by providing the model number and unit depth. Media will be provided in super sacks for easy installation. Each sack will weigh between 1,000 and 2,000 lbs. Biofiltration media replacement can be done following the steps below:



1. VACUUM EXISTING BIOFILTRATION MEDIA

Remove the mulch and vegetation to access the biofiltration media, and then position the vacuum truck accordingly. Utilize the vacuum truck to vacuum out all the media. Once all media is removed, use the pressure washer to spray down all the netting and underdrain systems on the inside of the media containment cage. Vacuum out any remaining debris after spraying down netting. Inspect the netting for any damage or holes. If the netting is damaged, it can be repaired or replaced with guidance by the manufacturer.

2. INSTALLING NEW BIOFILTRATION MEDIA

Ensure that the chamber is fully cleaned prior to installation of new media into the media containment cage(s). Media will be provided in super sacks for easy installation. A lifting apparatus (forklift, backhoe, boom truck, or other) is recommended to position the super sack over the biofiltration chamber. Add media in lifts to ensure that the riser pipes remain vertical. Be sure to only fill the media cage(s) up to the same level as the old media.

3. REPLANT VEGETATION

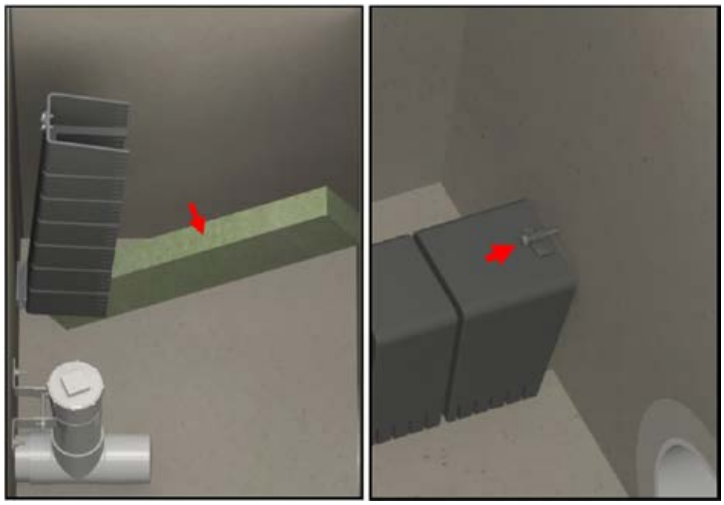
Once the media has been replaced, replant the vegetation and cover biofiltration chamber with approved mulch (if applicable). If the existing vegetation is not being reused, and new vegetation is being planted, you will need to acquire new plant establishment media that will be installed just below the mulch layer at each plant location. (see plan drawings for details). Contact one of Contech's Maintenance Team members at https://www.conteches.com/maintenance to order new plant establishment media.

REPLACING DRAIN DOWN FILTER MEDIA (ONLY ON OLDER CALIFORNIA MODELS)

NOTE: The drain down filter is only found on units installed in California prior to 2023
If during inspection it was determined that the drain down filter media requires replacement, contact one of Contech's Maintenance Team members at https://www.conteches.com/maintenance to order new media.

1. REMOVE EXISTING DRAIN DOWN MEDIA

Pull knob back to unlock the locking mechanism and lift the drain down filter housing to remove the used BioMediaGREEN filter block.



2. INSTALL NEW DRAIN DOWN MEDIA

Ensure that the chamber and housing are fully cleaned prior to installation of new media, and then insert the new BioMediaGREEN filter block. The media filter block should fit snugly between the chamber walls and be centered under the filter housing. Lower the housing over the filter block and secure the locking mechanism.

NOTES

CONTECH® ENGINEERED SOLUTIONS

Inspection Report
Modular Wetlands Linear

Project Name _____

Project Address _____
(city) (Zip Code)

Owner / Management Company _____

Contact _____ Phone ( ) –

For Office Use Only
(Reviewed By)
(Date)
Office personnel to complete section to the left.

Inspector Name _____ Date ____/____/____ Time _____ AM / PM

Type of Inspection ☐ Routine ☐ Follow Up ☐ Complaint ☐ Storm Storm Event in Last 72-hours? ☐ No ☐ Yes

Weather Condition _____ Additional Notes _____

Inspection Checklist

Modular Wetland System Type (Curb, Grate or UG Vault): _____ Size (22', 14' or etc.): _____

Structural Integrity:	**Yes**	**No**	**Comments**
Damage to pre-treatment access cover (manhole cover/grate) or cannot be opened using normal lifting pressure?			
Damage to discharge chamber access cover (manhole cover/grate) or cannot be opened using normal lifting pressure?			
Does the MWS unit show signs of structural deterioration (cracks in the wall, damage to frame)?			
Is the inlet/outlet pipe or drain down pipe damaged or otherwise not functioning properly?			
Working Condition:			
Is there evidence of illicit discharge or excessive oil, grease, or other automobile fluids entering and clogging the unit?			
Is there standing water in inappropriate areas after a dry period?			
Is the filter insert (if applicable) at capacity and/or is there an accumulation of debris/trash on the shelf system?			
Does the depth of sediment/trash/debris suggest a blockage of the inflow pipe, bypass or cartridge filter? If yes, specify which one in the comments section. Note depth of accumulation in in pre-treatment chamber.			Depth:
Does the cartridge filter media need replacement in pre-treatment chamber and/or discharge chamber?			Chamber:
Any signs of improper functioning in the discharge chamber? Note issues in comments section.			
Other Inspection Items:			
Is there an accumulation of sediment/trash/debris in the wetland media (if applicable)?			
Is it evident that the plants are alive and healthy (if applicable)? Please note Plant Information below.			
Is there a septic or foul odor coming from inside the system?			

Waste:	**Yes**	**No**
Sediment / Silt / Clay		
Trash / Bags / Bottles		
Green Waste / Leaves / Foliage		

Recommended Maintenance	
No Cleaning Needed	
Schedule Maintenance as Planned	
Needs Immediate Maintenance	

Plant Information	
Damage to Plants	
Plant Replacement	
Plant Trimming	

Additional Notes: _____

CONTECH®
ENGINEERED SOLUTIONS

Cleaning and Maintenance Report
Modular Wetlands Linear

Project Name _____

Project Address _____
(city) (Zip Code)

Owner / Management Company _____

Contact _____ Phone ( ) –

Inspector Name _____ Date ____/____/____ Time _____ AM / PM

For Office Use Only
(Reviewed By)
(Date)
Office personnel to complete section to the left.

Type of Inspection ☐ Routine ☐ Follow Up ☐ Complaint ☐ Storm Storm Event in Last 72-hours? ☐ No ☐ Yes

Weather Condition _____ Additional Notes _____

Site Map #	GPS Coordinates of Insert	Manufacturer / Description / Sizing	Trash Accumulation	Foliage Accumulation	Sediment Accumulation	Total Debris Accumulation	Condition of Media 25/50/75/100 (will be changed @ 75%)	Operational Per Manufactures' Specifications (If not, why?)
	Lat: Long:	MWS Catch Basins						
		MWS Sedimentation Basin						
		Media Filter Condition						
		Plant Condition						
		Drain Down Media Condition						
		Discharge Chamber Condition						
		Drain Down Pipe Condition						
		Inlet and Outlet Pipe Condition						

Comments:

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WWW.CONTECHES.COM

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SUPPORT

DRAWINGS AND SPECIFICATIONS ARE AVAILABLE AT WWW.CONTECHES.COM

ModWetLinear OM Manual 03/24

CONTECH®
ENGINEERED SOLUTIONS

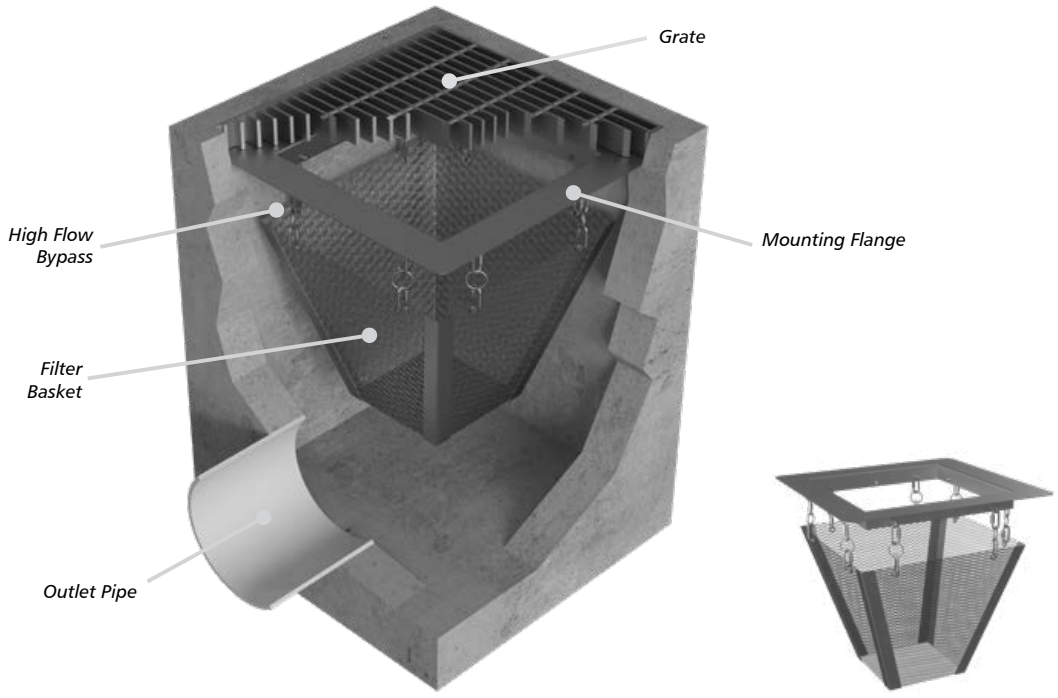
Bio Clean® Grate Inlet Filter
Full Capture Type
Operation & Maintenance Manual

Bio Clean®

Operation & Maintenance

Contech's Bio Clean® Grate Inlet Filter is a stormwater catch basin filter designed to remove trash, debris, sediments, particulates, and hydrocarbons (with hydrocarbon boom add-on). Constructed of 100% stainless steel, the filters are available at various sizes and depths, allowing them to fit in any grated catch basin inlet. The heavy duty construction allows for cleaning with any vacuum truck. The filter can also easily be cleaned by hand.

As with all stormwater BMPs, inspection and maintenance on the Grate Inlet Filter is necessary. Stormwater regulations require BMPs be inspected and maintained to ensure they are operating as designed to allow for effective pollutant removal and provide protection to receiving water bodies. It is recommended that inspections be performed multiple times during the first year to assess site-specific loading conditions. This is recommended because pollutant loading can vary greatly from site to site. Variables such as nearby soil erosion or construction sites, winter sanding of roads, amount of daily traffic, and land use can increase pollutant loading on the system. The first year of inspections can be used to set inspection and maintenance intervals for subsequent years. Without appropriate maintenance, a BMP can exceed its storage capacity which can negatively affect its continued performance in removing and retaining captured pollutants.



Filter Diagram

Inspection Equipment

Following is a list of equipment to allow for simple and effective inspection of the Grate Inlet Filter:

- Contech Inspection Form (page 7 of this O&M Manual).
- Manhole hook or appropriate tools to remove access hatches and covers.
- Appropriate traffic control signage and procedures.
- Protective clothing and eye protection.
- Note: entering a confined space requires appropriate safety procedures, PPE, and certification. It is generally not required for routine inspections or maintenance of the system.

Inspection Steps

The core to any successful stormwater BMP maintenance program is routine inspections. The inspection steps required on the Grate Inlet Filter are quick and easy. As mentioned above the first year should be seen as the maintenance interval establishment phase. During the first year more frequent inspections should occur in order to gather loading data and maintenance requirements for that specific site. This information can be used to establish a base for long-term inspection and maintenance interval requirements.

The Grate Inlet Filter can be inspected though visual observation without entry into the catch basin. All necessary pre-inspection steps must be carried out before inspection occurs, such as safety measures to protect the inspector and nearby pedestrians from any dangers associated with an open access hatch or manhole. Once the manhole has been safely opened the inspection process can proceed, as follows:

- Prepare the inspection form by writing in the necessary information including project name, location, date & time, unit number and other details as noted (page 7 of this O&M Manual).
- Observe the inside of the catch basin through the manhole. If minimal light is available and vision into the unit is impaired utilize a flashlight to see inside the catch basin.
- Look for any out of the ordinary obstructions in the catch basin, trough, weir, filter basket, basin floor our outlet pipe. Write down any observations on the inspection form.
- Through observation and/or digital photographs estimate the amount of trash, foliage and sediment accumulated inside the filter basket. Record this information on the inspection form.
- Observe the condition and color of the hydrocarbon boom. Record this information on the inspection form.
- Finalize inspection report for analysis by the maintenance manager to determine if maintenance is required.

Maintenance Indicators

Based upon observations made during inspection, maintenance of the system may be required based on the following indicators:

- Missing or damaged internal components.
- Obstructions in the filter basket and/or its bypass.
- Excessive accumulation of trash, foliage and sediment in the filter basket. Maintenance is required when the basket is greater than half-full.
- The following chart shows the 50% and 100% storage capacity of each filter height:

Basket Model	Height[1] (inches)	Top Width (inches)	Top Length (inches)	Bottom Width (inches)	Bottom Length (inches)	50% Storage Capacity (CF)	100% Storage Capacity (CF)
BC-GRATE-FULL-12-12-12	6.00	10.00	10.00	8.31	8.31	0.15	0.30
BC-GRATE-FULL-18-18-12	6.00	15.00	15.00	12.50	12.50	0.33	0.66
BC-GRATE-FULL-24-24-12	6.00	20.00	20.00	16.69	16.69	0.59	1.18
BC-GRATE-FULL-24-24-24	18.00	20.00	20.00	10.00	10.00	1.22	2.44
BC-GRATE-FULL-24-40-12	6.00	20.00	30.00	16.69	25.00	0.88	1.76
BC-GRATE-FULL-24-40-24	18.00	20.00	30.00	10.00	15.00	1.82	3.64
BC-GRATE-FULL-36-36-24	18.00	30.00	30.00	15.00	15.00	2.73	5.46

1 Refers to basket height. Total system height is equal to basket height plus 6 inches for bypass.

Maintenance Equipment

Following is a list of equipment to allow for simple and effective maintenance of the Grate Inlet Filter. It is recommended that a vacuum truck be utilized to minimize the time required to maintain the Grate Inlet Filter, though it can easily be cleaned by hand.

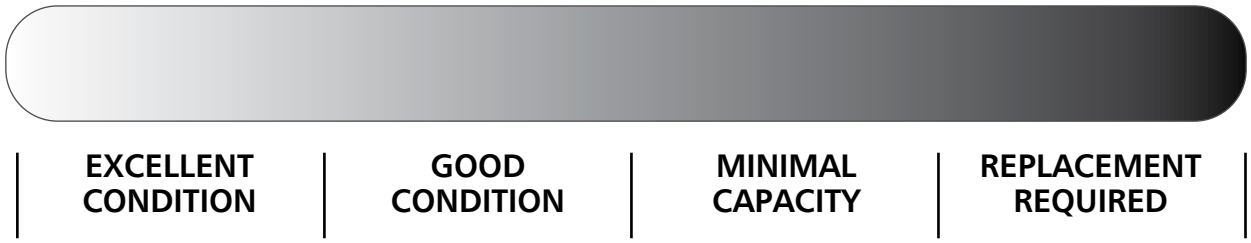
- Contech Maintenance Form (page 7 of this O&M Manual).
- Manhole hook or appropriate tools to access hatches and covers.
- Appropriate safety signage and procedures.
- Protective clothing and eye protection.
- Small or large vacuum truck (with pressure washer attachment preferred).
- Note: entering a confined space requires appropriate safety procedures, PPE, and certification. It is generally not required for routine maintenance of the system.

Maintenance Procedures

It is recommended that maintenance occurs at least two days after the most recent rain event to allow debris and sediments to dry out. Maintaining the system while flows are still entering it will increase the time and complexity required for maintenance.

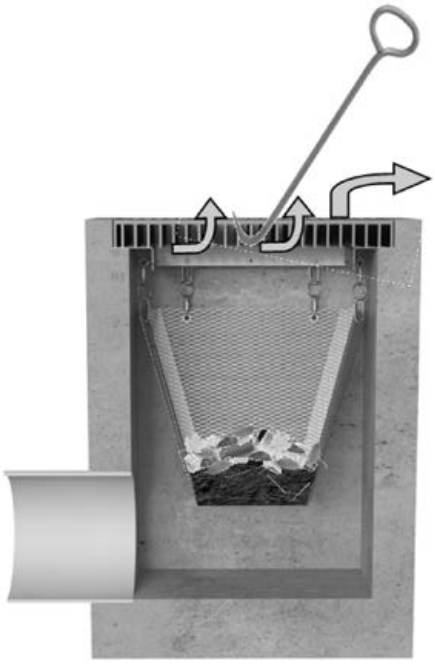
Cleaning of the Grate Inlet Filter can be performed from finish surface without entry into catch basin utilizing a vacuum truck. Some unique and custom configurations may create conditions which would require entry for some or all of the maintenance procedures. All necessary pre-maintenance steps must be carried out before maintenance begins, such as safety measures to protect the maintainer and nearby pedestrians from any dangers associated with an open access hatch or manhole. Once the manhole has been safely removed, the maintenance process can proceed:

- Inspect the Grate Inlet Filter as detailed under Inspection Steps above (page 3 of this O&M Manual).
- Using an extension on a vacuum truck, position the hose over the opened catch basin. Insert the vacuum hose down into the filter basket and suck out trash, foliage, and sediment. Pressure wash the sides and bottom of the filter basket to remove any stuck debris.
- Remove the optional hydrocarbon boom that is attached to the inside of the filter basket (if present). The hydrocarbon boom is fastened to vertical rails on two opposite sides of the basket. Assess the color and condition of the boom using the diagram below. If replacement is required, install and fasten on a new hydrocarbon boom. Booms can be ordered directly from the manufacturer.
- Below is a replacement indication color chart for the hydrocarbon booms.

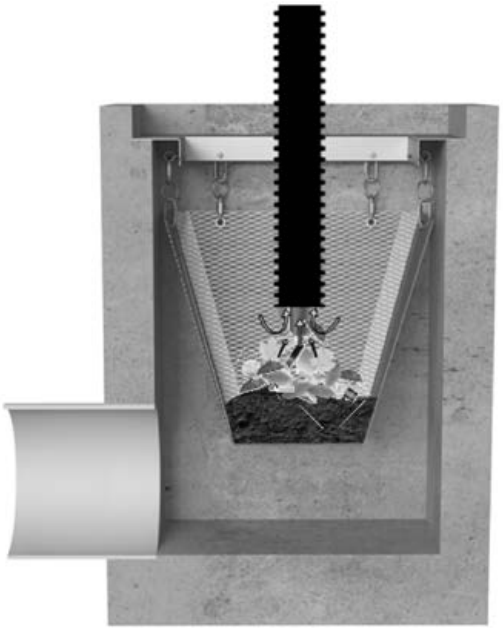


- When maintenance is complete, replace the grate and remove all traffic control.
- All removed debris and pollutants shall be disposed of following local and state requirements.
- Disposal requirements for recovered pollutants may vary depending on local guidelines. In most areas the sediment, once dewatered, can be disposed of in a sanitary landfill. It is not anticipated that the sediment would be classified as hazardous waste.
- In the case of damaged components, replacement parts can be ordered from the manufacturer. Hydrocarbon booms can also be ordered directly from the manufacturer as previously noted.

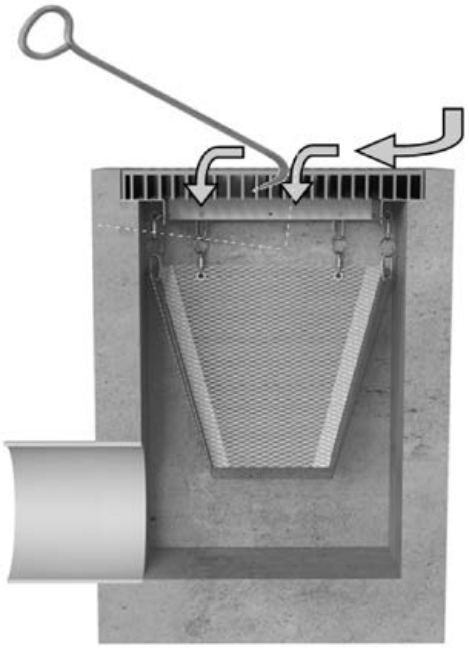
Maintenance Sequence



1. *Remove grate and set up vacuum truck to clean the filter basket.*



2. *Insert the vacuum hose down into the filter basket and suck out debris. Pressure wash the sides and bottom of the filter basket to remove any stuck debris.*



3. *Replace the grate and remove all traffic control. All removed debris and pollutants shall be disposed of following local and state requirements.*

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Inspection and Maintenance Report
Catch Basin Only

Project Name _____

Project Address _____ (city) (Zip Code)

Owner / Management Company _____

Contact _____ Phone ( ) –

For Office Use Only
(Reviewed By)
(Date)
Office personnel to complete section to the left.

Inspector Name _____ Date ____ / ____ / _____ Time _____ AM / PM

Type of Inspection ☐ Routine ☐ Follow Up ☐ Complaint ☐ Storm Storm Event in Last 72-hours? ☐ No ☐ Yes

Weather Condition _____ Additional Notes _____

Site Map #	GPS Coordinates of Insert	Catch Basin Size	Evidence of Illicit Discharge?	Trash Accumulation	Foliage Accumulation	Sediment Accumulation	Signs of Structural Damage?	Functioning Properly or Maintenance Needed?
1	Lat: Long:							
2	Lat: Long:							
3	Lat: Long:							
4	Lat: Long:							
5	Lat: Long:							
6	Lat: Long:							
7	Lat: Long:							
8	Lat: Long:							
10	Lat: Long:							
11	Lat: Long:							
12	Lat: Long:							
Comments:								

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GIF Full Capture Operation & Maintenance Manual 06/23

PSI Pacific Southwest Industries

ENGINEERED - PUMPS/FLUID HANDLING & DISPOSAL SYSTEMS - PACKAGED LIFT STATIONS

LIFT STATION REQUIRED MAINTENANCE

The lift station should be inspected twice a year for proper operation, and should be checked for overabundance of solid matter such as grease and soap buildup.

Proper operation and inspection would include the following:

1) Automatic operation of the system by float activation. One pump starting at lead on levels, second pump starting at high level conditions; manual operation by use of the selector switches.

2) Inspect floats for proper elevation and for proper movement. Correct any obstructions.

3) Check incoming power for proper voltage. Check voltage at motor connections.

4) Check amperage of each motor.

5) Hose down lift station to clean the walls of the wet well, pumps and floats.

MECHANICAL SEAL INSPECTION OF PUMPS

Inspection of the mechanical seals should be done every two years.

The inspection will include the following:

Pull pump out of wet well. Remove oil seal plug and inspect the oil for clarity. Clear oil indicates no water intrusion and chamber is to be topped off with 30 weight turbine oil. If oil is cloudy the mechanical seal and oil needs to be replaced.

Note: Your lift station is designed to pump raw unscreened sewage. Refrain from putting the following into your sewage system: tampons, feminine napkins, condoms, handy wipes, baby wipes, paper towels, diapers, plastic bags, q-tips, etc., and food grease. Although grease will be pumped, grease will cause problems eventually and will not be covered under the manufacturer's warranty. Dispose of the above items in a trash can.

PSI recommends that preventive maintenance and service be performed by a qualified technician.
Any question regarding your lift station should be directed to Scott Richardson at 800-358-9095.

18541 Collier Ave Lake Elsinore, CA 92530
(800) 358-9095 (951) 674-2144 fax (951) 674-9444 CSL #583052
www.psipumps.com Email: info@psipumps.com

Attachment I: Geotechnical Report

GEOTECHNICAL EXPLORATION REPORT MCDONALD'S SITE ID NO. 0045199 6201 LINCOLN AVENUE APN: 260-022-05 AND 260-022-06 BUENA PARK, CALIFORNIA 90620

Prepared For

MCDONALD'S USA

18565 JAMBOREE ROAD, SUITE 850
IRVINE, CALIFORNIA 92612

Prepared By

LEIGHTON CONSULTING, INC.
2600 MICHELSON DRIVE, SUITE 400
IRVINE, CALIFORNIA 92612

Project Number 036.0000022433

June 3, 2024

Leighton
a verdantas company

Leighton Consulting, Inc.

June 3, 2024

Project No. 036.0000022433

McDonald's USA
18565 Jamboree Road, Suite 850
Irvine, California 92612

Attention: Ms. Erica Uhler
Real Estate Coordinator

Subject: Geotechnical Exploration Report
McDonald's Site ID No. 0045199
6201 Lincoln Avenue
APN: 260-022-05 and 260-022-06
Buena Park, California 90620

In response to your request, Leighton Consulting, Inc. (Leighton) has conducted a geotechnical engineering exploration of a new McDonald's restaurant, Site ID No. 0045199, located at 6201 Lincoln Avenue, Assessor Parcel Numbers (APN) 260-022-05 and 260-022-06, northeast of Hoffman Street and Lincoln Avenue intersection in Buena Park, California. The purpose of our services was to explore the subsurface conditions at the project site in order to develop geotechnical parameters and recommendations for design and construction of the project.

Our subsurface exploration indicates the site is underlain by a thin mantle of artificial fill overlying Quaternary young alluvium (Qya). The artificial fill was documented as approximately up to 3½ feet thick and consisted primarily of sand with silt, sand with clay and clays. In general, the young alluvial deposits below the mantle of artificial fill consisted mainly of loose to medium dense sand with interlayers of lean clay.

Review of the *Seismic Hazard Zone Report for the Los Alamitos Quadrangle* (CGS, 1998) indicates the subject site is located within an area that has been identified as being potentially susceptible to the occurrence of liquefaction, requiring a site-specific liquefaction evaluation. Based on our analysis, soil layers between 10 to 45 feet may be susceptible to liquefaction during a strong local earthquake. Liquefaction-induced settlement was estimated to be approximately 11 inches. The potential for surface manifestation of liquefaction, such as sand boils and ground fissures, may exist at the site, due to the relatively shallow and relatively thick layers of the potentially liquefiable soils.

Foundation for the proposed structures should be underlain by compacted fill reinforced with geogrid to provide uniform support and reduce potential for differential settlement and adverse impact from liquefaction. If the proposed structures cannot tolerate the estimated seismic settlement, ground improvement, such as stone columns, ramped aggregate piers or deep soil mixing, may be performed to mitigate and reduce the liquefaction potential of the soils.

Based on the results of our subsurface exploration and engineering analyses, the proposed project is feasible from a geotechnical standpoint. Specific recommendations for the geotechnical aspects of the project are presented in this report.

We appreciate the opportunity to be of service to you on this project. If you have any questions or if we can be of further service, please contact us at your convenience.

Respectfully submitted,

LEIGHTON CONSULTING, INC.

Christian Delgadillo, PE, GE
Associate Engineer
Ext. 4218; cdelgadillo@leightongroup.com

RM/CD/cd

Distribution: (1) Addressee (PDF via email)

TABLE OF CONTENTS

Section **Page**

LIST OF TABLES

ATTACHMENTS (Rear of Text)

1.0 INTRODUCTION

1.1 Site Location and Proposed Project

The project site is located at 6201 Lincoln Avenue, Assessor Parcel Numbers (APN) 260-022-05 and 260-022-06, northeast of Hoffman Street and Lincoln Avenue intersection in Buena Park, California. The approximate location of the site is shown on Figure 1, *Site Location Map*.

The proposed McDonald's will consist of a rectangular single-story building, drive-thru lanes, parking spaces, and a concrete trash enclosure structure. Ancillary improvements will include pavement, flatwork, and landscaping.

1.2 Purpose and Scope of Services

The purpose of our services was to explore the subsurface conditions at the project site in order to develop geotechnical parameters and recommendations for design and construction of the proposed McDonald's Restaurant. This geotechnical exploration was performed in accordance with your Purchase Order No. 273733 dated March 13, 2024.

The scope of this exploration included the following tasks:

- *Background Review* – A background review was performed of readily available, relevant geotechnical and geological literature pertinent to the site. References used in preparation of this report are listed in Section 6.0.

- *Pre-Field Exploration Activities* – Boring locations were field marked and DigAlert was notified to locate and mark existing underground utilities prior to our subsurface exploration. Our field exploration was coordinated with the landowner and McDonald's USA.

- *Field Exploration* – On April 22, 2024, four (4) hollow-stem auger borings (LB-1, LB-2, LB-3 and LB-4) were advanced to depths of 51½, 16½ , 11½ and 5 feet below ground surface. The approximate locations of the borings are presented on Figure 2, *Exploration Location Map*. The borings were logged and sampled by a member of our technical staff using Standard Penetration Test (SPT) and California Ring samplers at selected intervals following ASTM D 1586 and ASTM D 3550 for SPT and split-barrel sampling of soil. The SPT and Ring samplers were driven into the soil with a 140-pound hammer, free falling

30 inches. The number of blows was noted for every 6 inches of sampler penetration. Relatively undisturbed samples were collected from the borings using the Ring sampler. In addition to driven samples, representative bulk soil samples were also collected from the borings. Each soil sample collected was described in general conformance with the Unified Soil Classification System (USCS). The samples were then sealed, packaged, and transported to our in-house geotechnical laboratory for testing. The soil descriptions and depths are noted on the boring logs presented in Appendix A, *Boring Logs*.

- *Field Percolation Testing* – Boring LB-4 was converted to a temporary percolation test well. The boring was pre-soaked upon completion of drilling in preparation for in-situ percolation testing. The testing was performed in general accordance with County of Orange Technical Guidance Document (OCTGD) for the Preparation of Conceptual/Preliminary and/or Project Water Quality Management Plans (WQMPs), dated December 20, 2013. A 2-inch-diameter polyvinyl chloride (PVC) pipe with a perforated section (0.020-inch slotted screen) from 0 to 5 feet was placed in the borehole and the annulus was filled with pea gravel.

  After pre-soaking, the test well was filled to a water level at least five times the boring radius above the bottom of the boring to determine the time interval for the percolation test. Once the time interval was established, the percolation test was performed by measuring the drop of water level in the pipe and the time associated with the change in water level. The water drop was measured using a manual water sounder. At the end of the time interval, the well was refilled to the approximate initial water level and the procedure was repeated until the test was completed. Field measurement data and the calculated infiltration rate for the test well is presented in Appendix B, *Percolation Test Results*. After the conclusion of percolation testing, the PVC pipe was removed from the test well. The test well was backfilled with the soil cuttings. The approximate location of the percolation test is shown on Figure 2.

- *Laboratory Tests* – Laboratory tests were performed on selected soil samples obtained during our field exploration. The laboratory testing program was designed to evaluate the physical and engineering characteristics of the onsite soil. Tests performed during this exploration include:

  - In-situ Moisture Content and Dry Density (ASTM D 2216 and D 2937).
  - Passing No. 200 Sieve (ASTM D 1140).
  - Atterberg Limits (ASTM D 4318).
  - Consolidation Test (ASTM D 2435).
  - Direct Shear Test (ASTM D 3080).
  - Expansion Index (ASTM D 4829).
  - Corrosivity Tests – Sulfate, Chloride, pH and Resistivity (CTM 417, 422, and 532/643); and
  - R-Value Test (ASTM D 2844/CTM 301).

  Test results of the in-situ moisture content and dry density are presented on the boring logs in Appendix A. Other laboratory test results are presented in Appendix C, *Laboratory Test Results*.

- *Engineering Analysis* - The data obtained from our background review, field exploration, and laboratory testing program were evaluated and analyzed to develop the conclusions and recommendations presented in this report for the proposed project.

- *Report Preparation* - The results of the exploration are summarized in this report presenting our findings, conclusions, and recommendations.

2.0 GEOTECHNICAL FINDINGS

2.1 Regional Geologic Setting

Regionally, this site is located within the Peninsular Ranges Geomorphic Province of California in the Central Block subdivision of the Los Angeles Basin. The Peninsular Ranges province extends approximately 900 miles southward from the Santa Monica Mountains to the tip of Baja California (Yerkes, et al., 1965) and is characterized by elongated, northwest-trending mountain ridges and sediment-floored valleys. The province includes numerous northwest trending fault zones, most of which either die out, merge with or are terminated by faults that form the southern margin of the Transverse Ranges Geomorphic Province. These northwest trending fault zones include the San Jacinto, Whittier-Elsinore, Palos Verdes, and Newport-Inglewood fault zones.

More specifically, located within Orange County, this site is situated to the west of the Huntington Beach Mesa. The Huntington Beach Mesa is tectonically uplifted by compressive forces along the Newport-Inglewood Fault Zone (NIFZ). The project site near-surface soils consist of Quaternary-aged young alluvial valley deposits (CGS, 2016).

2.2 Subsurface Soil Conditions

Our subsurface exploration indicates the site is underlain by artificial fill (Af) likely associated with construction of the existing improvements overlying Quaternary-aged young alluvial valley deposits (Qya). The artificial fill was documented as approximately up to 3½ feet thick and consisted primarily of sand with silt, sand with clay and clays. In general, the young alluvial deposits below the mantle of artificial fill consisted mainly of loose to medium dense sand with interlayers of lean clay.

Existing asphalt pavements penetrated at the boring locations consisted of 2 inches of asphalt concrete overlying approximately 6½ inches of aggregate base. Detailed descriptions of the materials encountered in the test boring are presented on the boring logs in Appendix A.

2.3 Expansive Soils

Expansive soils contain significant amounts of clay particles that swell considerably when wetted and which shrink when dried. Foundations constructed on these soils are subject to uplifting forces caused by the swelling. Without proper mitigation measures, heaving and cracking of concrete slabs and foundations could result. A representative sample of the near-surface soils was subjected to Expansion Index (EI) testing to evaluate the expansive potential of the soils. Results of the test indicated a very low expansion potential (EI=0).

2.4 Collapse and Compressibility Potential

Consolidation testing was performed on a representative soil sample to evaluate the compressibility of the soils. Soil compressibility refers to settlement potential of soils when subjected to increased loads, such as from a fill surcharge or structure loads. Collapse is settlement of soils upon wetting. The test results indicate the tested soil exhibited low compressibility when subjected to stresses that are anticipated to represent post-construction field conditions. In addition, the tested soil sample exhibited low collapse potential when the sample was inundated with water.

2.5 Groundwater

Groundwater was encountered in boring LB-1 and LB-2 at a depth of approximately 13.3 feet and 10 feet below ground surface, respectively. Based the *Seismic Hazard Zone Report for the Los Alamitos 7.5-Minute Quadrangle* (CGS, 1998), historically high groundwater in the area is on the order of 10 feet. Based on the available information, a design groundwater depth of 10 feet was selected for our geotechnical analysis.

Local fluctuations in groundwater can be expected to occur beneath the site, manifested as zones of perched water and increased soil moisture. Sources of possible groundwater may be due to periods of prolonged and/or locally intense precipitation, excessive landscape irrigation, or infiltration relating to on-site stormwater disposal systems. Based on the above, groundwater is not expected to pose a significant constraint to the planned grading or construction.

2.6 Faulting and Seismicity

No active faults are mapped or known to cross the site and the site is not located within an Alquist-Priolo Earthquake Fault Zone (Bryant and Hart, 2007). The principal seismic hazard at the site is ground shaking resulting from an earthquake occurring along any of several major active and potentially active faults in southern California. The closest active faults to the site are the Newport Inglewood Fault Zone and Elsinore Fault Zone, located approximately 6.6 miles and 9.7 miles from the site, respectively.

The intensity of ground shaking at a given location depends primarily upon the earthquake magnitude, the distance from the source, and the site response characteristics. Peak horizontal ground accelerations are generally used to evaluate the intensity of ground motion. Using the ATC Hazards by Location Tool (https://hazards.atcouncil.org) to obtain seismic design parameter values from the United States Geological Survey (USGS), the peak ground acceleration for the Maximum Considered Earthquake (MCE_G) adjusted for the Site Class effects (PGA_M) is 0.69g. Based on the USGS online unified hazard tool program (USGS, 2024a), the modal seismic event is Moment Magnitude (M_W) 7.3 at a distance of 5.7 miles.

2.7 Secondary Seismic Hazards

Secondary seismic hazards in the region could include soil liquefaction and the associated surface manifestation, earthquake-induced land sliding and flooding, and tsunamis. A site-specific evaluation of these potential hazards is discussed in the following sections.

2.7.1 Liquefaction

Liquefaction is a seismic phenomenon in which loose, saturated, granular soils behave similarly to a fluid when subjected to high-intensity ground shaking. Liquefaction occurs when three general conditions exist: 1) shallow groundwater; 2) low density, fine, clean sandy soils; and 3) strong ground motion. Effects of liquefaction can include sand boils, settlement, and bearing capacity failures below structural foundations.

In general, adverse effects of liquefaction or cyclic softening include excessive ground settlement, loss of bearing support for structural foundations, and seismically induced lateral ground deformations such as

lateral spreading. Depending upon the relative thickness of the liquefied strata with respect to overlying non-liquefiable soils, other potentially adverse effects such as ground oscillation and ground fissuring may occur.

As shown on the State of California *Earthquake Zones of Required Investigation* for the Los Alamitos Quadrangle (CGS, 2007), the site **is** located within an area that has been identified by the State as being susceptible to liquefaction.

We evaluated the liquefaction potential at the site using the recorded Standard Penetration Test (SPT) data from our boring LB-1. Our analysis was performed using the computer program LiqSVs version 2.3.2.5 (Geologismiki, 2023). Quantitative liquefaction evaluation was conducted using a peak horizontal ground acceleration of 0.69g, a Moment Magnitude (Mw) of 7.31, and a design groundwater of 10 feet. Our analysis, presented in Appendix D, Liquefaction Analysis, identifies soil layers that are potentially liquefiable at depths ranging from 10 to 30 feet, and 45 to 50 feet. In addition, the potential for surface manifestations of liquefaction (e.g., sand boils and ground fissures) exists at the site because the potentially liquefiable layers are relatively shallow and relatively thick.

2.7.2 Seismically Induced Settlement

Seismically induced settlement consists of dynamic compaction settlement of dry/unsaturated soil (above groundwater) and liquefaction-induced settlement (below groundwater). These settlements occur primarily within loose to medium dense sandy soils due to reduction in volume during and shortly after an earthquake event.

The settlements of these strata were estimated to result in a cumulative settlement of approximately 11 inches for the historically high groundwater level. The seismically induced differential settlement was estimated to be on the order of 5½ inches over 30 feet.

2.7.3 Seismically Induced Lateral Ground Displacement

Seismically induced lateral ground displacement involves primarily lateral movement of earth materials due to ground shaking in conjunction with liquefaction. Lateral spreading can manifest as near-vertical cracks with predominantly horizontal movement of the soil mass involved towards an

adjacent open slope face. Lateral spreading occurs when there is widespread liquefaction and a gentle slope, or a free face toward which lateral spreading may occur.

Based on the absence of slopes and unconfined areas at the site, the potential for earthquake-induced lateral spreading is considered low.

2.7.4 Seismically Induced Landslides

Review of the *Seismic Hazard Zone Report for the Los Alamitos 7.5-Minute Quadrangle* (CGS, 1998) indicate the subject site is **not** located within an area that has been identified by the State of California as being potentially susceptible to the occurrence of seismically induced landslides. In addition, no significant ground slopes exist at the sites and in their vicinity. Therefore, the potential for seismically induced landslides is considered negligible.

2.7.5 Flooding

According to the Federal Emergency Management Agency (FEMA) website (https://msc.fema.gov/portal/home), the site is located within an "Area of Minimal Flood Hazard" (Zone X).

2.7.6 Seiches and Tsunamis

Seiches are large waves generated within enclosed bodies of water in response to ground shaking. Tsunamis are sea waves generated by large-scale disturbance of the ocean floor that induce a rapid displacement of the water column above. The most frequent causes of tsunamis are shallow underwater earthquakes or submarine landslides. Based on the inland location and the lack of nearby enclosed water bodies, the risks associated with tsunamis and seiches are considered negligible. Review of the *Tsunami Hazard Area Map* for the County of Los Angeles indicates the site is located outside of mapped tsunami hazard areas (CGS, 2021).

3.0 DESIGN RECOMMENDATIONS

Geotechnical recommendations for the proposed project are presented in the following sections. Construction considerations are discussed in Section 4.0 of this report. These recommendations are based upon the exhibited geotechnical engineering properties of the soils and their anticipated response both during and after construction as well as proper field observation and testing during construction.

Based on our analysis, the seismically induced settlement was estimated to be on the order of 11 inches considering the historically high groundwater level, with a differential settlement estimated to be on the order half of the total settlement over 30 feet. The potential for surface manifestation of liquefaction, such as sand boils and ground fissures, may exist at the site.

Foundation for the proposed structures should be underlain by compacted fill reinforced with geogrid to provide a uniform support and reduce potential for differential settlement and potential adverse impact from liquefaction. The differential settlement that has been estimated due to liquefaction and the resulting angular distortion is recommended to be reviewed by the structural engineer to determine if any special detailing or other design techniques are required for structural connections to ensure the proposed building can sufficiently withstand the estimated level of distortion without structural failure.

The intent of the above recommendations for site preparation relative to liquefaction is to maintain structural integrity but may not maintain serviceability of the facility without potentially significant repairs should liquefaction occur. If the potential for loss of the structure is not acceptable to the owner, ground improvement, such as stone columns, ramped aggregate piers or deep soil mixing, may be performed to mitigate and reduce the liquefaction potential of the soils.

These recommendations are considered minimal and may be superseded by more conservative requirements of the civil engineer, building code, and local agencies. All earthwork should be performed in accordance with the recommendations below, unless specifically revised or amended by future review of project plans.

3.1 Earthwork

3.1.1 Site Preparation

Prior to grading, existing facilities and vegetation should be stripped and trees should be removed in accordance with the regulations of the

governing agency. Surface obstructions, miscellaneous debris, and other deleterious materials should also be removed. Any existing utilities that will not remain in service should be removed or properly abandoned. The appropriate method of utility abandonment will depend upon the type and depth of the utility. Recommendations for abandonment can be made as necessary.

3.1.2 Overexcavation and Recompaction

Foundation for the proposed building should be underlain by compacted fill reinforced with geogrid to provide a uniform support and reduce potential for differential settlement and potential adverse impact from liquefaction. The compacted fill should extend a minimum of 3 feet below bottom of the foundation and a minimum 3 feet beyond outside edges of the foundation. The compacted fill should be reinforced with placement of three layers of geogrid starting from bottom of removal and each geogrid layer separated by 12 inches of soils (see Section 3.1.4). If ground improvement is performed, then no overexcavation and recompaction is considered necessary for the proposed building.

During construction, locally deeper removals may be recommended based on the actual depths of undocumented fill and field conditions. The exposed undisturbed native soil surface should be scarified to a depth of 12 inches, moisture conditioned, and compacted to a minimum of 90% relative compaction (per ASTM D 1557) prior to placing any fill.

Pavement areas, driveway, and concrete flatwork should be underlain by a minimum of 1 foot of compacted fill. Local conditions may be encountered that could require additional overexcavation beyond the above noted minimum to obtain an acceptable subgrade. The actual depths and lateral extents of remedial grading will be determined by Leighton, based on subsurface conditions encountered during grading. Prior to placing fill materials, the pavement subgrade soils should be scarified to a minimum depth of 6 inches, moisture conditioned, and proofrolled. Any soft and/or unsuitable materials encountered at the bottom of the excavations should be removed and replaced with fill material.

3.1.3 Fill Placement and Compaction

Onsite soils free of organics, debris and oversized material (greater-than

3 inches in largest dimension) are suitable for use as compacted fill. However, any soil to be placed as fill, whether onsite or imported material, should be first observed by Leighton, and then tested if and as necessary, prior to approval for use as compacted fill. All fill must be free of hazardous materials.

All fill soil should be placed in thin, loose lifts, moisture-conditioned, as necessary, to within 3 percent above optimum moisture content, and compacted to a minimum 90% relative compaction as determined by ASTM D1557 standard test method (modified Proctor compaction curve) within the building footprint. Aggregate base for pavement sections should be compacted to a minimum of 95% relative compaction.

3.1.4 Geogrid Placement

A minimum of three layers of reinforcement geogrid should be placed below the proposed building at vertical intervals of approximately 12 inches with the lowest geogrid placed at bottom of the overexcavation. The geogrid should comply with *Standard Specifications for Public Works Construction* (Greenbook) Table 213.5.2 (D) Biaxial S2 or approved equivalent. Installation of the geogrid should be performed in accordance with the manufacturer's guidelines. In general, geogrid should be placed on smooth surfaces of compacted fill and installed by unrolling, not by dragging. The end edges of geogrid roll should be nailed with 6-inch long "U" staples and/or other approved fasteners. The geogrid should be pulled to remove any slack and compacted fill should be placed from the fastened geogrid side to unfastened geogrid side. Each geogrid should be overlapped by at least 12 inches horizontally. Construction equipment should not be contacting the geogrid directly. The geogrid should be placed continuously under the proposed foundation footprint.

In cases of damaged geogrid, the geogrid should be carefully cut and repaired by overlapping geogrid patch at least one foot on both sides of cut geogrid or reconnecting the existing geogrid. Construction sequencing of underground utilities should take the geogrid into considerations. The geogrid layers may be deepened to accommodate installation of shallow utility lines.

3.2 Ground Improvement

The soils at the site contain layers that are susceptible to liquefaction that may result in liquefaction-induced settlement and surface manifestation. If the proposed building cannot tolerate the magnitude of estimated seismically induced settlement, then we recommend that ground improvement techniques be performed to reduce the liquefaction potential of the subsurface soils.

In-place ground improvement techniques, such as stone columns or rammed aggregate piers, may be used to mitigate the potentially liquefiable soils and reduce the settlement potential. These techniques basically improve the strength of the soils and/or provide drainage paths for pore water pressure dissipation. The columns or piers are installed in a grid pattern with a center-to-center spacing of typically 8 to 10 feet and mainly intended to reduce the potential for liquefaction and foundation settlement. Design of the ground improvement will require consulting with a specialty contractor.

The target mitigation goal (design criteria) is to reduce the seismically induced settlement and surface manifestation of liquefaction to an acceptable level to support the proposed building on a shallow foundation system upon implementation of the mitigation measures for liquefaction. Based on our liquefaction analysis (Appendix D), the depth of the soils to be treated is recommended to a depth of at least 35 feet below the existing grade. Upon implementation of ground improvement, the seismically induced settlement is estimated to be on the order of 1½ inches or less, with a seismically induced differential settlement estimated to be on the order of ¾ inch over 30 feet.

A site-specific supplemental geotechnical exploration is recommended to include Cone Penetration Test (CPT) soundings prior to and after ground improvement is implemented. The CPTs provide a continuous record of the subsurface stratigraphy of the subsoil and is a cost-effective method to evaluate ground improvement. The geotechnical engineer should constantly monitor the effectiveness of any testing/evaluation program and modify the program if necessary.

3.3 Seismic Design Parameters

Moderate to strong ground shaking due to seismic activity is expected at the site during the life span of the project. We evaluated the site-specific seismic design parameters for Site Class D in accordance with the 2022 California Building Code

(CBC) and ASCE 7-16. The seismic parameters were estimated using the Southern California Earthquake Center (SCEC) Utilization of Ground Motion Simulations online tool. The results are summarized in the table below.

Table 1 – 2022 CBC Seismic Design Parameters

Categorization /Coefficient	Design Value
Site Latitude	33.8321
Site Longitude	-118.0247
Site Class	D
Mapped Spectral Response Acceleration at Short Period (0.2 sec), S_S	1.474
Mapped Spectral Response Acceleration at Long Period (1 sec), S_1	0.522
Short Period (0.2 sec)Site Coefficient, F_a	1.0
Long Period (1 sec) Site Coefficient, F_v	1.778
Adjusted Spectral Response Acceleration at Short Period (0.2 sec), S_{MS}	1.474
Adjusted Spectral Response Acceleration at Long Period (1 sec), S_{M1}	0.928
Design Spectral Response Acceleration at Short Period (0.2 sec), S_{DS}	0.983
Design Spectral Response Acceleration at Long Period (1 sec), S_{D1}	0.619
Design Peak Ground Acceleration, PGA_M	0.69

[1]A ground motion hazard analysis is not required where the value of the parameter S_{M1} determined by Eq. (11.4-2) is increased by 50% for all applications of S_{M1} in ASCE7-16 Supplement 3. The resulting value of the parameter S_{D1} determined by Eq. (11.4-4) shall be used for all applications of S_{D1} in ASCE7-16 Supplement 3.

3.4 Shallow Foundation Design Parameters

Following site grading recommended in Section 3.1, the proposed building may be supported on a conventional shallow foundation system or a mat foundation.

3.4.1 Allowable Bearing Capacity – Spread Footings

Shallow foundations should have a minimum embedment of 18 inches and a minimum width of 12 inches. For shallow foundations supported on a minimum of 3 feet of compacted fill, a net allowable bearing capacity of 2,000 pounds per square foot (psf) may be used for foundation design. The allowable bearing capacity may be increased by 250 psf for each additional foot of embedment depth or footing width to a maximum value of 3,000 psf. The bearing capacity may be increased by one-third when considering loads of short duration, such as those imposed by wind and seismic forces.

The recommended allowable bearing capacity for the foundation is generally based on a total allowable static settlement of 1 inch, with differential settlement taken as ½ inch over 30 feet.

3.4.2 Allowable Bearing Capacity – Mat Foundation

A mat foundation bearing on properly compacted fill may be designed using a maximum allowable bearing capacity of 1,500 psf and a coefficient of vertical subgrade reaction of 40 pounds per cubic inch (pci). The bearing capacity may be increased by one-third for wind or seismic loading. The perimeter of the mat foundation should have a minimum embedment of 12 inches below the lowest adjacent grade.

Total and differential settlements of the mat foundation due to static loads are expected to be on the order of 1 inch and ½ over a distance of 30 feet, respectively. Seismic settlement due to liquefaction should also be considered in design.

3.4.3 Lateral Load Resistance

Resistance to lateral loads will be provided by a combination of friction between the soil and foundation interface and passive pressure acting against the vertical portion of the foundation. A friction coefficient of 0.35 may be used at the soil-concrete interface for calculating the sliding resistance. A passive pressure based on an equivalent fluid pressure of 360 pounds per cubic foot (pcf) may be used for calculating the lateral passive resistance. The lateral passive resistance can be taken into account only if it is ensured that the soil against embedded structures will remain intact with time. The above values do not contain an appreciable factor of safety, so the structural

engineer should apply the applicable factors of safety and/or load factors during design. The lateral load resistance may be increased by one-third when considering loads of short duration, such as those imposed by wind and seismic forces.

3.5 Slab-On-Grade

From a geotechnical standpoint, we recommend slab-on-grade floor slab be a minimum 5 inches thick with No. 3 rebar placed at the center of the slab at 18 inches on center in each direction. The structural engineer should design the actual thickness and reinforcement based on anticipated loading conditions. Where moisture-sensitive floor coverings or equipment is planned, the slabs should be protected by a minimum 10-mil thick vapor barrier between the slab and subgrade.

Exterior concrete slabs that are not subject to vehicular loading, such as patio slabs and sidewalks, should be at least 4 inches thick. We suggest that the exterior concrete slabs be reinforced using No. 3 rebar, 18 inches on center in both directions, placed at mid-thickness.

Minor cracking of concrete after curing due to drying and shrinkage is normal and should be expected; however, concrete is often aggravated by a high water/cement ratio, high concrete temperature at the time of placement, small nominal aggregate size, and rapid moisture loss due to hot, dry, and/or windy weather conditions during placement and curing. Cracking due to temperature and moisture fluctuations can also be expected. The use of low-slump concrete or low water/cement ratios can reduce the potential for shrinkage cracking. Additionally, our experience indicates that the use of reinforcement in slabs and foundations can generally reduce the potential for concrete cracking.

To reduce the potential for excessive cracking, concrete slabs-on-grade should be provided with construction or weakened plane joints at frequent intervals. Joints should be laid out to form approximately square panels.

3.6 Lateral Earth Pressures and Resistance to Lateral Loads

The following recommendations may be used for design and construction of retaining structures at the site. We recommend that any permanent earth retaining structures be backfilled with onsite or import soil with Expansion Index (EI) of not greater than 50 (per ASTM D 4829). The recommended lateral earth pressures for

design of retaining walls supported on shallow foundations are presented in the table below.

Table 2 – Recommended Lateral Earth Pressures

Condition	Level Backfill
Active	40 pcf
At-Rest	60 pcf
Passive	360 pcf (Maximum of 3,600 psf)

Retaining walls retaining more than 6 feet of soil should consider a seismic earth pressure increment with an inverted triangular distribution of 23 psf/foot in addition to the active earth pressure provided above. The above values do not contain an appreciable factor of safety, so the structural engineer should apply the applicable factors of safety and/or load factors during design. Retaining walls should be provided with a drainage system behind the wall to prevent build-up of hydrostatic pressure.

Cantilever walls that are designed for a deflection at the top of the wall of at least 0.001H, where H is equal to the wall height, may be designed using the active earth pressure condition. Rigid walls that are not free to rotate, walls that are braced at the top, and walls that provide indirect support for foundations should be designed using the at-rest condition.

Lateral load resistance will be provided by the sliding resistance at the base of the foundation and the passive pressure developed along the front of the foundation. A frictional resistance coefficient of 035 may be used at the concrete and soil interface. The lateral passive resistance can be taken into account only if it is ensured that the soil against embedded structures will remain intact with time.

In addition to the above-mentioned pressures, retaining walls must be designed to resist horizontal pressures that may be generated by surcharge loads applied at the ground surface such as from traffic loads which can be assumed to be at least 100 psf uniform pressure.

3.7 Soil Corrosivity

One representative soil sample was evaluated for corrosivity to concrete and steel. The test results are presented in Appendix C, *Laboratory Test Results*, and design recommendations pertaining to soil corrosivity are presented below.

We anticipate that concrete structures will be exposed to moisture from precipitation and irrigation. Based on the site location and the results of chloride testing of the site soils, we do not anticipate that concrete structures will be exposed to external sources of chlorides, such as deicing chemicals, salt, brackish water, or seawater.

American Concrete Institute (ACI) specifies exposure category C1 where concrete is exposed to moisture, but not to external sources of chlorides based on Table 19.3.1.1 of ACI 318 (2014). ACI provides concrete design recommendations in Table 19.3.2.1, including a minimum compressive strength of 2,500 psi and a maximum chloride content of 0.3 percent for non-prestressed concrete and 0.06 percent for prestressed concrete.

ACI 318 (2014) specifies exposure category S0 based on Table 19.3.1.1. There is no cement type specified for exposure category S0 based on Table 19.3.2.1; however, a minimum compressive strength of 2,500 psi should be used.

The measured value of the minimum electrical resistivity of the sample when saturated was 13,500 ohm-cm for the site. This indicates that the soils tested at the site are "very mildly corrosive" to ferrous metals based on findings of studies presented in the American Society for Testing and Materials (ASTM) STP 1013 titled "Effects of Soil Characteristics on Corrosion" (February 1989). A qualified corrosion consultant should provide appropriate corrosion mitigation for ferrous metals in contact with the onsite soils.

This is a conservative assessment based on limited sampling; therefore, additional corrosion testing should be performed at the completion of grading or as recommended by a qualified corrosion consultant.

3.8 Pavement Section Design

ased on design procedures outlined in the current Caltrans *Highway Design Manual* and a design R-value of 50 based on the laboratory test results, flexible

pavement sections were calculated for the Traffic Indices (TIs) ranging 5 to 7. The results are summarized in the table below.

Table 3 – Asphalt Pavement Design Sections

General Traffic Condition	Design Traffic Index (TI)	Asphalt Concrete (inches)	Aggregate Base (inches)
Automobile Parking	5	3.0	4.5
	5 ½	3.0	5.0
Truck Access & Parking Areas	6	3.5	4.0
	6 ½	4.0	4.5
	7	4.5	5.0

Final pavement thickness should be based on subgrade R-value test results performed on representative finished subgrade soils. Appropriate Traffic Index (TI) data should be selected by the project Civil Engineer or traffic engineering consultant for final design of pavement sections. These Caltrans pavement section design calculations were based on a pavement life of approximately 20 years with a normal amount of flexible pavement maintenance.

Portland cement concrete (PCC) should be used, rather than asphalt, in point and impact load areas such as loading docks, trash truck bin loading areas, and drive-through lanes. Where applicable, we recommend that a minimum of 6 inches of PCC underlain by 4 inches of Aggregate Base be used for these areas. The PCC section should be underlain by at least 12 inches of compacted fill. The PCC should have a minimum 28-day compressive strength of 3,000 psi. Other requirements of Caltrans Standard Specifications regarding mixing and placing of concrete should be followed.

Adequate drainage (both surface and subsurface) should be provided such that the subgrade soils and aggregate base materials are not allowed to become wet. All pavement construction should be performed in accordance with the Caltrans *Standard Specifications* latest edition. Recommended structural pavement materials should conform to the specified provisions in the Caltrans *Standard Specifications* (2021) including grading and quality requirements, shown below:

- **Asphalt Concrete (Hot-Mix Asphalt)** for pavement should be Type A and should conform to Section 39 of the *Standard Specifications*. Asphalt concrete specimens should be tested for surface abrasion in accordance with CTM 360.

- **Class II Aggregate Base (AB):** Asphalt concrete and aggregate base should conform to Caltrans *Standard Specifications* Sections 39 and 26-1.02A, respectively; see:

  https://dot.ca.gov/programs/design/ccs-standard-plans-and-standard-specifications

Aggregate base should have an R-value of at least (≥) 78. Minimum relative-compaction requirements for aggregate base should be 95 percent of the modified Proctor laboratory maximum density as determined by ASTM D1557.

As an alternative, asphalt concrete can conform to Section 203-6 of the *Standard Specifications for Public Works Construction* ("Greenbook"), 2021 Edition. Crushed aggregate base or crushed miscellaneous base can conform to Sections 200-2.2 and 200-2.4 of the Greenbook.

3.9 Infiltration Rate

Percolation test was performed using the falling-head method, which records the drop of water level inside the test well over the specified time interval and repeated several times until consistent measurements are achieved. The field ("observed") infiltration rate was calculated based on the Porchet method provided in the OCTGD (2013). The field percolation test data and infiltration rate calculation are provided in Appendix B. Results of the field percolation testing are summarized in Table 4.

The field ("observed") infiltration rates must be reduced by applying an appropriate factor of safety to determine design infiltration rate that will represent long-term performance of the proposed infiltration BMP device. Based on the OCTGD, the safety factor consists of two categories of reduction factors, Suitability Assessment (Category A) and Design (Category B). The safety for Category B will be determined by the BMP devices designer. The recommended reduction factor at the test location for the Suitability Assessment Category is included in Table 4.

Table 4 – Field Percolation Test Summary

Percolation Test Well No.	Screen Interval Depth	Field Infiltration Rate ("Observed") inch/hour	Suitability Assessment Safety Factor (Worksheet H Factor Category A)
LB-4	0 to 5	4.74	2.0

4.0 CONSTRUCTION CONSIDERATIONS

4.1 Trench Backfill

Utility trenches should be backfilled with compacted fill in accordance with Section 306.12 of the *Standard Specifications for Public Works Construction* ("Greenbook"). Utility trenches can be backfilled with onsite soils free of debris, organic and oversized material. All backfill should be placed in thin lifts (appropriate for the type of compaction equipment), moisture conditioned above optimum, and mechanically compacted to at least 90 percent relative compaction, relative to the ASTM D 1557 laboratory maximum density.

Prior to backfilling the trench, pipes should be bedded in and covered with pipe bedding material in accordance to the pipe manufacturer's specification. The bedding material may consist of compacted free-draining sand, gravel, or crushed rock, with a Sand Equivalent (SE) of at least 30. The bedding material should extend to at least 12 inches over the top of the pipeline.

Where utility trenches cross underneath building footing, the trenches should be plugged by a minimum of 2 feet of impermeable clayey soils or sand/cement slurry to reduce the potential for water intrusion underneath the slab.

4.2 Temporary Excavations and Shoring Design

All temporary excavations should be performed in accordance with project plans, specifications, and all OSHA requirements. Excavations of 5 feet or deeper should be laid back or shored in accordance with OSHA requirements before personnel are allowed to enter. To protect workers entering excavations, excavations should be performed in accordance with OSHA and Cal-OSHA requirements, and the current edition of the California Construction Safety Orders.

Contractors should be advised that fill soils should be considered Type C soils as defined in the California Construction Safety Orders. As indicated in Table B-1 of Article 6, Section 1541.1, Appendix B, of the California Construction Safety Orders, excavations less than (<) 20 feet deep within Type C soils should be sloped back no steeper than 1½:1 (H:V), where workers are to enter the excavation. This may be impractical near existing utilities and structures; so shoring may be required depending on trench locations and depths. Stiff undisturbed native clays will stand at steeper slopes.

Typical cantilever shoring should be designed using an active earth pressure presented in Table 2 of this report. If excavations are braced at the top and at specific design intervals, the active pressure may then be approximated by a rectangular soil pressure distribution with the pressure per foot of width equal to 26H, where H is equal to the depth of the excavation being shored. These lateral earth pressures are for a drained condition. For an undrained condition, hydrostatic pressure should be included.

During construction, the soil conditions should be regularly evaluated to verify that conditions are as anticipated. The contractor should be responsible for providing the "competent person" required by OSHA, standards to evaluate soil conditions. Close coordination between the competent person and the geotechnical engineer should be maintained to facilitate construction while providing safe excavations.

4.3 Geotechnical Services during Construction

Our geotechnical recommendations provided in this report are based on information available at the time the report was prepared and may change as plans are developed. Additional geotechnical exploration, testing and/or analysis may be required based on final plans. Leighton should review site grading, foundation and shoring (if any) plans when available, to comment further on geotechnical aspects of this project and check to see general conformance of final project plans to recommendations presented in this report.

Leighton should be retained to provide geotechnical observation and testing during excavation and all phases of earthwork. Our conclusions and recommendations should be reviewed and verified by us during construction and revised accordingly if geotechnical conditions encountered vary from our findings and interpretations. Geotechnical observation and testing should be provided:

- During all excavation and placement of all fill materials,
- During compaction of all fill materials,
- During ground improvement operations, if performed,
- After excavation of all footings and prior to placement of concrete,
- During utility trench backfilling and compaction,
- During pavement subgrade and base preparation, and/or
- If and when any unusual geotechnical conditions are encountered.

5.0 LIMITATIONS

This report was based solely on data obtained from a limited number of geotechnical exploration, and soil samples and tests. Such information is, by necessity, incomplete. The nature of many sites is such that differing soil or geologic conditions can be present within small distances and under varying climatic conditions. Changes in subsurface conditions can and do occur over time. Therefore, the findings, conclusions, and recommendations presented in this report are only valid if Leighton has the opportunity to observe subsurface conditions during grading and construction, to confirm that our preliminary data are representative for the site. Leighton Consulting should also review the construction plans and project specifications, when available, to comment on the geotechnical aspects.

It should be noted that the recommendations in this report are subject to the limitations presented in this section. An information sheet prepared by the Geoprofessional Business Association (GBA) is also included in Appendix E. We recommend that all individuals using this report read the limitations along with the attached information sheet.

Our professional services were performed in accordance with the prevailing standard of professional care as practiced by other geotechnical engineers in the area. We do not make any warranty, either expressed or implied. The report may not be used by others or for other projects without the expressed written consent of our client and our firm.

6.0 REFERENCES

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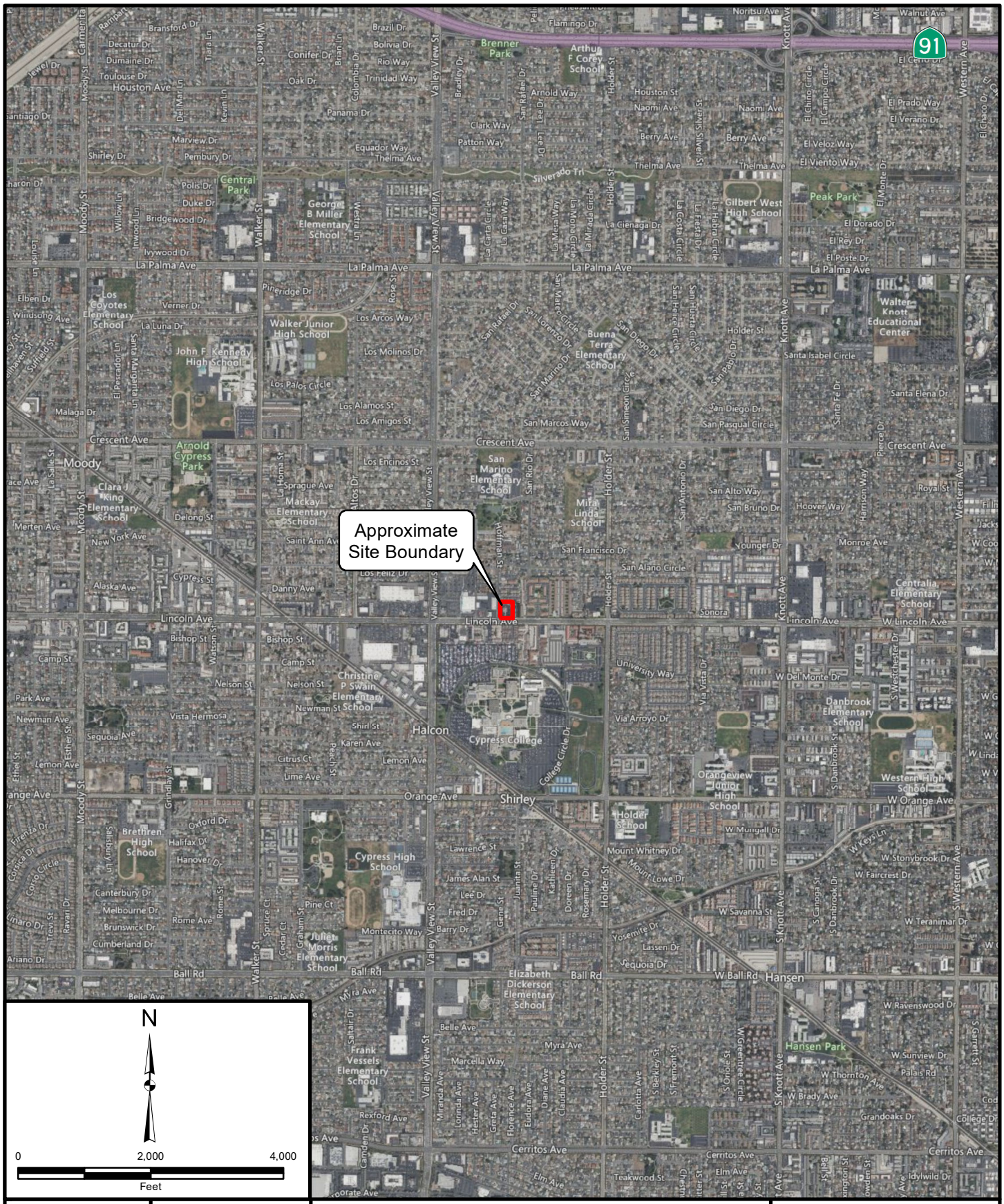

Project: 22433	Eng/Geol: CD
Scale: 1 " = 2,000 '	Date: May 2024

Reference: © 2024 Microsoft Corporation © 2024 Maxar ©CNES (2024) Distribution Airbus

Author: (mmurphy)

SITE LOCATION MAP

McDonald's Site ID No. 0045199
6201 Lincoln Avenue
Buena Park, California

FIGURE 1

Leighton

Map Saved as Z:\Project Files\MA-NZ\McDonaldsUSA\22433 - 45199 Buena Park Geotech\GIS\Maps\22433_F01_SLM_2024-05-24.mxd on 5/24/2024 9:04:49 AM

Legend

LB-4
T.D.=5'
Approximate Location of Boring Showing Total Depth

Approximate Site Boundary

N

0 30 60
Feet

Project: 22433	Eng/Geol: CD
Scale: 1 " = 30 '	Date: May 2024
Base Map: Concept Site Plan - Option 2 by Sevan Engineering, P.C. Author: (mmurphy)	

EXPLORATION LOCATION MAP

McDonald's Site ID No. 0045199
6201 Lincoln Avenue
Buena Park, California

FIGURE 2

Leighton

Map Saved as Z:\Project Files\MA-NZ\McDonaldsUSA\22433 - 45199 Buena Park Geotech\GIS\Maps\22433_F02_ELM_2024-05-24.mxd on 5/24/2024 10:38:14 AM

APPENDIX A

BORING LOGS

GEOTECHNICAL BORING LOG LB-1

Project No.	36.0000022433	**Date Drilled**	4-22-24
Project	McDonald's Buena Park 45199	**Logged By**	RM
Drilling Co.	Martini Drilling Corporation	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	57'
Location	See *Figure 2 - Exploration Location Map*	**Sampled By**	RM

Elevation Feet	Depth Feet	Graphic Log	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
		N S							*This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	
55	0			B-1				SP-SM	@Surface: 2-inches of Asphalt Concrete over 6.5-inches of Aggreggate Base **Artificial Fill (Af)** @8.5": Poorly Graded SAND with SILT (SP-SM), medium dense, dark gray, moist, fine sand, no plasticity, trace gravel.	EI, CR
50	5			R-1	5 7 9	99	3	SP	**Young Alluvium (Qya)** @3.5': Poorly Graded SAND (SP), medium dense, light brown, slightly moist to moist, fine sand. @5': Light olive brown, fine to medium sand.	CN, DS
45	10			R-2	3 5 6	92	24	SP	@10': Light gray, moist.	
40	15			S-1	P 1 1		26	ML	@15': SILT (ML), very soft, gray brown, moist, fine sand, medium plasticity. Groundwater tagged at 13.3 feet.	AL
35	20			R-3	3 6 9		21	SP	@20': Poorly Graded SAND (SP), medium dense, light gray, moist, fine to medium sand.	
30	25			S-2	2 1 1		26	ML	@25': SILT (ML), soft, dark gray brown, moist, fine to medium sand.	AL
	30									

SAMPLE TYPES:

B	BULK SAMPLE
C	CORE SAMPLE
G	GRAB SAMPLE
R	RING SAMPLE
S	SPLIT SPOON SAMPLE
T	TUBE SAMPLE

TYPE OF TESTS:

-200	% FINES PASSING	DS	DIRECT SHEAR	SA	SIEVE ANALYSIS
AL	ATTERBERG LIMITS	EI	EXPANSION INDEX	SE	SAND EQUIVALENT
CN	CONSOLIDATION	H	HYDROMETER	SG	SPECIFIC GRAVITY
CO	COLLAPSE	MD	MAXIMUM DENSITY	UC	UNCONFINED COMPRESSIVE STRENGTH
CR	CORROSION	PP	POCKET PENETROMETER		
CU	UNDRAINED TRIAXIAL	RV	R VALUE		

Leighton

GEOTECHNICAL BORING LOG LB-1

Project No.	36.0000022433	**Date Drilled**	4-22-24
Project	McDonald's Buena Park 45199	**Logged By**	RM
Drilling Co.	Martini Drilling Corporation	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	57'
Location	See *Figure 2 - Exploration Location Map*	**Sampled By**	RM

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	30			S-3	3 6 8		25	SM	@30': SILTY SAND (SM), medium dense, dark olive brown, moist, fine sand.	-200
25										
	35			S-4	2 3 4		20	CL	@35': Lean CLAY (CL), stiff, gray brown, moist, fine sand, medium plasticity.	AL
20										
	40			S-5	1 2 3		26	CL	@40': Lean CLAY (CL), medium stiff, gray brown, moist, medium plasticity, fine sand, trace strong cementation.	AL
15										
	45			S-6	3 7 7		24	SM	@45': SILTY SAND (SM), very stiff, dark gray, moist, fine sand, no plasticity, trace moderate cementation.	-200
10										
	50			S-7	3 6 7				@50': No recovery.	
5									**TOTAL DEPTH = 51.5 FEET** **GROUNDWATER ENCOUNTERED AT 13.3 FEET** **BACKFILLED WITH SOILT CUTTINGS** **SURFACE PATCHED WITH QUICK-SET COLD ASPHALT**	
	55									
0										
	60									

SAMPLE TYPES:

- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

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GEOTECHNICAL BORING LOG LB-2

Project No.	36.0000022433	**Date Drilled**	4-22-24
Project	McDonald's Buena Park 45199	**Logged By**	RM
Drilling Co.	Martini Drilling Corporation	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	57'
Location	See *Figure 2 - Exploration Location Map*	**Sampled By**	RM

Elevation Feet	Depth Feet	Graphic Log	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
		N S							*This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	
55	0			B-1				SM	@Surface: 2-inches of Asphalt Concrete over 6.5-inches of Aggreggate Base **Artificial Fill (Af)** @8.5": SILTY SAND (SM), medium dense, light gray, slightly moist, fine to medium sand, no plasticity.	RV
									Young Alluvium (Qya) @3': Poorly Graded SAND (SP), medium dense, light brown, slightly moist to moist, fine sand.	
50	5			R-1	4 7 10	94	9	SP	@5': White brown, fine to medium sand.	
45	10			R-2	2 5 7		23	SP	@10': Medium sand.	
40	15			S-1	1 2 3			SP	@15': No recovery.	
									TOTAL DEPTH = 16.5 FEET **GROUNDWATER NOT ENCOUNTERED** **BACKFILLED WITH SOILT CUTTINGS** **SURFACE PATCHED WITH QUICK-SET COLD ASPHALT**	
35	20									
30	25									
	30									

SAMPLE TYPES:

B	BULK SAMPLE
C	CORE SAMPLE
G	GRAB SAMPLE
R	RING SAMPLE
S	SPLIT SPOON SAMPLE
T	TUBE SAMPLE

TYPE OF TESTS:

-200	% FINES PASSING	DS	DIRECT SHEAR	SA	SIEVE ANALYSIS
AL	ATTERBERG LIMITS	EI	EXPANSION INDEX	SE	SAND EQUIVALENT
CN	CONSOLIDATION	H	HYDROMETER	SG	SPECIFIC GRAVITY
CO	COLLAPSE	MD	MAXIMUM DENSITY	UC	UNCONFINED COMPRESSIVE STRENGTH
CR	CORROSION	PP	POCKET PENETROMETER		
CU	UNDRAINED TRIAXIAL	RV	R VALUE		

Leighton

GEOTECHNICAL BORING LOG LB-3

Project No.	36.0000022433	**Date Drilled**	4-22-24
Project	McDonald's Buena Park 45199	**Logged By**	RM
Drilling Co.	Martini Drilling Corporation	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	57'
Location	See *Figure 2 - Exploration Location Map*	**Sampled By**	RM

Elevation Feet	Depth Feet	Graphic Log	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
		N S							*This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	
57	0								@Surface: 2-inches of Asphalt Concrete over 7-inches of Aggreggate Base	
				B-1				SP-SM	**Artificial Fill (Af)** @9": Poorly Graded SAND with SILT and GRAVEL (SP-SM), medium dense, light gray, slightly moist, fine sand, no plasticity, fine gravel.	
55									**Young Alluvium (Qya)** @2': Poorly Graded SAND (SP), medium dense, light brown, slightly moist to moist, fine sand.	
	5			R-1	4 6 8	94	10	SP	@5': White brown, moist, fine to medium sand.	
50										
	10			R-2	2 5 7		26	SP	@10': Light gray mottled with oxidation.	
45									**TOTAL DEPTH = 11.5 FEET** **GROUNDWATER ENCOUNTERED AT 10 FEET** **BACKFILLED WITH SOILT CUTTINGS** **SURFACE PATCHED WITH QUICK-SET COLD ASPHALT**	
	15									
40										
	20									
35										
	25									
30										
	30									

SAMPLE TYPES:

B	BULK SAMPLE
C	CORE SAMPLE
G	GRAB SAMPLE
R	RING SAMPLE
S	SPLIT SPOON SAMPLE
T	TUBE SAMPLE

TYPE OF TESTS:

-200	% FINES PASSING	DS	DIRECT SHEAR	SA	SIEVE ANALYSIS
AL	ATTERBERG LIMITS	EI	EXPANSION INDEX	SE	SAND EQUIVALENT
CN	CONSOLIDATION	H	HYDROMETER	SG	SPECIFIC GRAVITY
CO	COLLAPSE	MD	MAXIMUM DENSITY	UC	UNCONFINED COMPRESSIVE STRENGTH
CR	CORROSION	PP	POCKET PENETROMETER		
CU	UNDRAINED TRIAXIAL	RV	R VALUE		

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GEOTECHNICAL BORING LOG LB-4

Project No.	36.0000022433	**Date Drilled**	4-22-24
Project	McDonald's Buena Park 45199	**Logged By**	RM
Drilling Co.	Martini Drilling Corporation	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	57'
Location	See *Figure 2 - Exploration Location Map*	**Sampled By**	RM

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
55	0			B-1				ML	**Artificial Fill (Af)** @0": SANDY SILT (ML), medium stiff, light yellow brown, slightly moist, fine sand, no palsticity, trace rootlets.	-200
								SM	**Young Alluvium (Qya)** @1': Silty SAND (SM), medium dense, dark brown, slightly moist to moist, fine sand.	
50	5								**TOTAL DEPTH = 5 FEET** **GROUNDWATER NOT ENCOUNTERED** **CONVERTED TO TEMPORARY MONITORING WELL** **BACKFILLED WITH SOILT CUTTINGS**	
45	10									
40	15									
35	20									
30	25									
	30									

SAMPLE TYPES:

- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

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APPENDIX B

PERCOLATION TEST RESULTS

Boring Percolation Test Data Sheet

Project Number:	36.00000224	**Test Hole Number:**	LB-4
Project Name:	McDonald's Buena Park	**Date Excavated:**	4/22/2024
Earth Description:	SM	**Date Tested:**	4/22/2024
Liquid Description:	Tap Water	**Depth of boring (ft):**	5
Tested By:	RM	**Radius of boring (in):**	4
Time Interval Standard		**Radius of casing (in):**	1
Start Time for Pre-Soak:	4/22/24 8:00 AM	**Length of slot of casing (ft):**	5
Start Time for Standard:	4/22/24 12:00 PM		
Standard Time Interval		**Note:**	
Between Readings, mins:	10		

Percolation Data

Reading	Time	Time Interval, Δt (min.)	Initial/Final Depth to Water (ft.)	Initial/Final Water Height, H_0/H_f (in.)	Total Water Drop, Δd (in.)	Percolation Rate (min./in.)	Infiltration Rate (in./hr.)
1	12:00	25	3.50	18.0	18.0	1.39	7.85
	12:25		5.00	0.0			
2	12:26	25	3.50	18.0	18.0	1.39	7.85
	12:51		5.00	0.0			
3	12:52	10	3.50	18.0	6.8	1.46	4.95
	1:02		4.07	11.2			
4	1:03	10	3.50	18.0	6.8	1.46	4.95
	1:13		4.07	11.2			
5	1:14	10	3.50	18.0	6.7	1.49	4.85
	1:24		4.06	11.3			
6	1:25	10	3.50	18.0	6.6	1.52	4.74
	1:35		4.05	11.4			
7	1:36	10	3.50	18.0	6.7	1.49	4.85
	1:46		4.06	11.3			
8	1:47	10	3.50	18.0	6.6	1.52	4.74
	1:57		4.05	11.4			

Observed Infiltration Rate, I (Last Reading)

$I_t = \Delta H^*(60r) / \Delta t(r+2H_{avg})$ = 4.74 in./hr.

Suitability Assessment Safety Factor = 2.00

(Worksheet H Factor Category A)

Reference: Technical Guidance Document (TGD) for the Preparation of Conceptual/Preliminary and/or Project Water Quality Management Plans, Appendix VII, December 2013.

APPENDIX C

LABORATORY TEST RESULTS

Boring No.	LB-1	LB-1						
Sample No.	S-3	S-6						
Depth (ft.)	30.0	45.0						
Sample Type	SPT	SPT						
Soil Identification	Dark olive brown silty sand (SM)	Dark gray silty sand (SM)						
Moisture Correction								
Wet Weight of Soil + Container (g)	0.0	0.0						
Dry Weight of Soil + Container (g)	0.0	0.0						
Weight of Container (g)	1.0	1.0						
Moisture Content (%)	0.0	0.0						
Sample Dry Weight Determination								
Weight of Sample + Container (g)	662.8	594.4						
Weight of Container (g)	107.3	107.9						
Weight of Dry Sample (g)	555.5	486.5						
Container No.:								
After Wash								
Method (A or B)	A	A						
Dry Weight of Sample + Cont. (g)	485.9	426.9						
Weight of Container (g)	107.3	107.9						
Dry Weight of Sample (g)	378.6	319.0						
% Passing No. 200 Sieve	**31.8**	**34.4**						
% Retained No. 200 Sieve	68.2	65.6						

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PERCENT PASSING
No. 200 SIEVE
ASTM D 1140

Project Name: McDonald's Buena Park 45199

Project No.: 036.0000022433

Tested By: K. Jumig Date: 05/07/24

Passing #200 LB-1, not split

Boring No.	LB-4							
Sample No.	B-1							
Depth (ft.)	0-5							
Sample Type	Bulk							
Soil Identification	Dark brown silty sand (SM)							
No Moisture Correction; ASTM D 1140 modified to include splitting the sample on the #4 sieve								
Total Sample Dry Weight Determination								
Dry Weight of Soil + Container (g)	1281.9							
Weight of Container (g)	107.4							
Dry Weight of Soil (g)	1174.5							
Sample Dry Weight Determination, Retained on Sieve #4								
Dry Weight of Sample + Cont. (g)	62.8							
Weight of Container (g)	61.7							
Weight of Dry Sample (g)	1.2							
Sample Dry Weight Determination, Passing Sieve #4								
Dry Weight of Sample + Cont. (g)	617.9							
Weight of Container (g)	107.4							
Weight of Dry Sample (g)	510.5							
After Wash								
Method (A or B)	A							
Dry Weight of Sample + Cont. (g)	468.6							
Weight of Container (g)	107.4							
Weight of Dry Sample (g)	361.2							
% Passing No. 4 Sieve	99.9							
% Retained No. 4 Sieve	0.1							
% Passing No. 200 Sieve	**29.2**							

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PERCENT PASSING
No. 200 SIEVE
ASTM D 1140

Project Name: McDonald's Buena Park 45199

Project No.: 036.0000022433

Tested By: K. Jumig Date: 05/07/24

ATTERBERG LIMITS

ASTM D 4318

Project Name:	McDonald's Buena Park 45199	Tested By:	J. Domingo	Date:	05/08/24
Project No. :	036.0000022433	Input By:	J. Ward	Date:	06/03/24
Boring No.:	LB-1	Checked By:	J. Ward		
Sample No.:	S-1	Depth (ft.)	15.0		
Soil Identification:	Grayish brown silt (ML)				

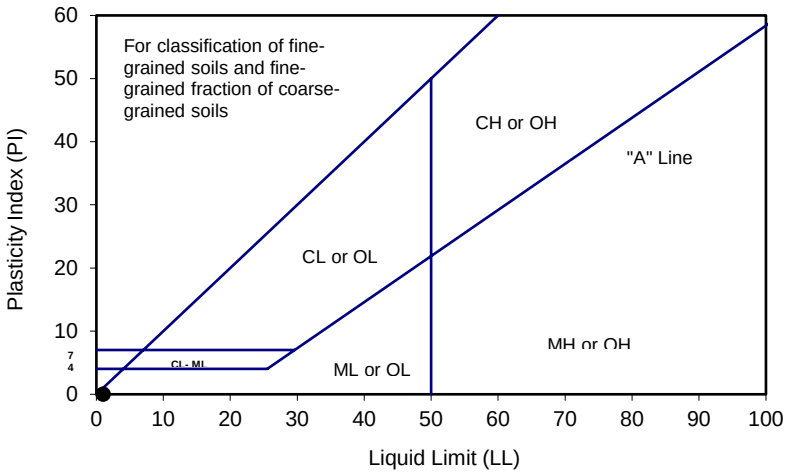
TEST	PLASTIC LIMIT		LIQUID LIMIT			
NO.	1	2	1	2	3	4
Number of Blows [N]			14			
Wet Wt. of Soil + Cont. (g)	**Cannot be rolled:**		27.85	**Cannot get more than 14 blows:**		
Dry Wt. of Soil + Cont. (g)	**NonPlastic**		22.71	**NonPlastic**		
Wt. of Container (g)			1.05			
Moisture Content (%) [Wn]			23.73			

Liquid Limit	**NP**
Plastic Limit	**NP**
Plasticity Index	**NP**
Type of Fines	**NP**

PI at "A" - Line = 0.73(LL-20) =

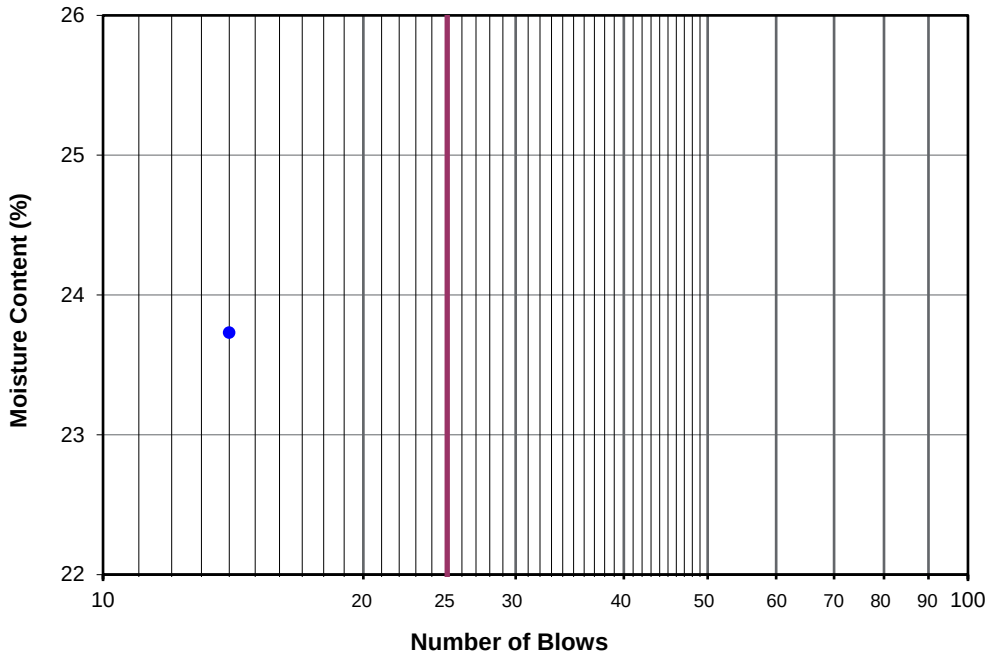
One - Point Liquid Limit Calculation

$LL = Wn(N/25)^{0.12}$



PROCEDURES USED

- [ ] Wet Preparation
  Multipoint - Wet
- [X] Dry Preparation
  Multipoint - Dry
- [X] Procedure A
  Multipoint Test
- [ ] Procedure B
  One-point Test



ATTERBERG LIMITS

ASTM D 4318

Project Name:	McDonald's Buena Park 45199	Tested By:	J. Domingo	Date:	05/08/24
Project No. :	036.0000022433	Input By:	J. Ward	Date:	06/03/24
Boring No.:	LB-1	Checked By:	J. Ward		
Sample No.:	S-2	Depth (ft.)	25.0		
Soil Identification:	Dark grayish brown silt (ML)				

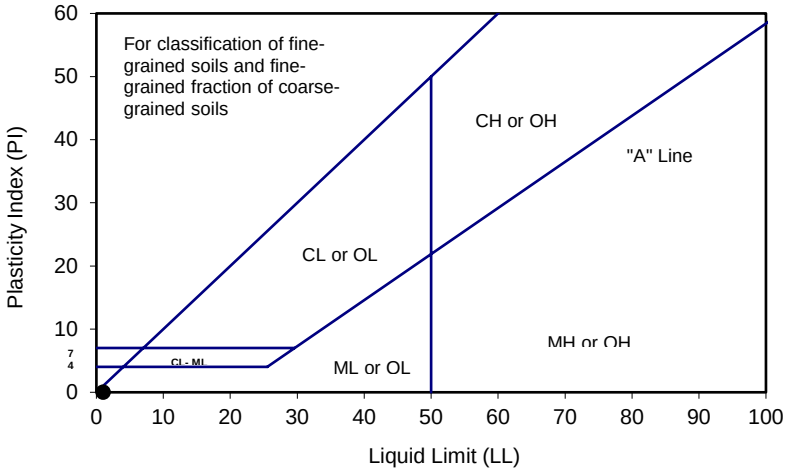
TEST	PLASTIC LIMIT		LIQUID LIMIT			
NO.	1	2	1	2	3	4
Number of Blows [N]			3			
Wet Wt. of Soil + Cont. (g)	**Cannot be rolled:**		27.26	**Cannot get more than 3 blows:**		
Dry Wt. of Soil + Cont. (g)	**NonPlastic**		22.48	**NonPlastic**		
Wt. of Container (g)			1.04			
Moisture Content (%) [Wn]			22.29			

Liquid Limit	**NP**
Plastic Limit	**NP**
Plasticity Index	**NP**
Type of Fines	**NP**

PI at "A" - Line = 0.73(LL-20) =

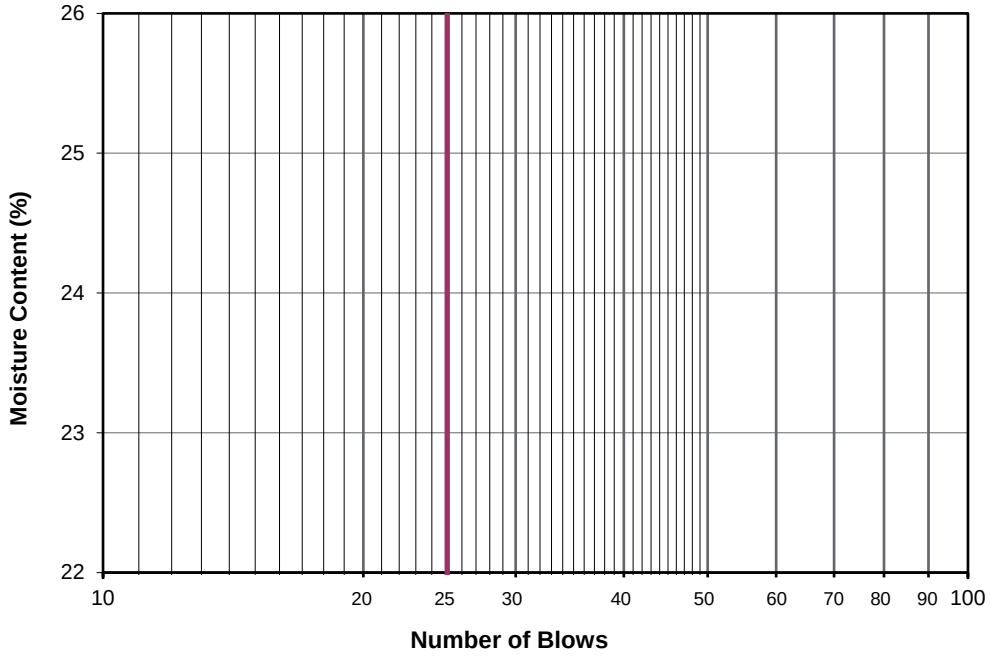
One - Point Liquid Limit Calculation

$LL = Wn(N/25)^{0.12}$



PROCEDURES USED

	Wet Preparation
	Multipoint - Wet
X	Dry Preparation
	Multipoint - Dry
X	Procedure A
	Multipoint Test
	Procedure B
	One-point Test



ATTERBERG LIMITS

ASTM D 4318

Project Name:	McDonald's Buena Park 45199	Tested By:	J. Domingo	Date:	05/08/24
Project No. :	036.0000022433	Input By:	JD/JHW	Date:	05/09/24
Boring No.:	LB-1	Checked By:	J. Ward		
Sample No.:	S-4	Depth (ft.)	35.0		
Soil Identification:	Grayish brown lean clay (CL)				

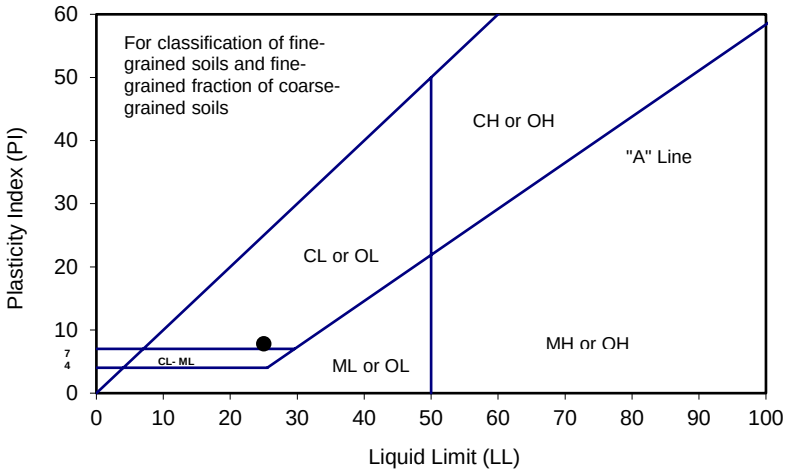
TEST	PLASTIC LIMIT		LIQUID LIMIT			
NO.	1	2	1	2	3	4
Number of Blows [N]			30	25	16	
Wet Wt. of Soil + Cont. (g)	9.93	9.92	22.96	23.54	23.71	
Dry Wt. of Soil + Cont. (g)	8.63	8.62	18.63	19.05	18.98	
Wt. of Container (g)	1.06	1.06	1.06	1.12	1.07	
Moisture Content (%) [Wn]	17.17	17.20	24.64	25.04	26.41	

Liquid Limit	**25**
Plastic Limit	**17**
Plasticity Index	**8**
Type of Fines	**CL**

PI at "A" - Line = 0.73(LL-20) 3.65

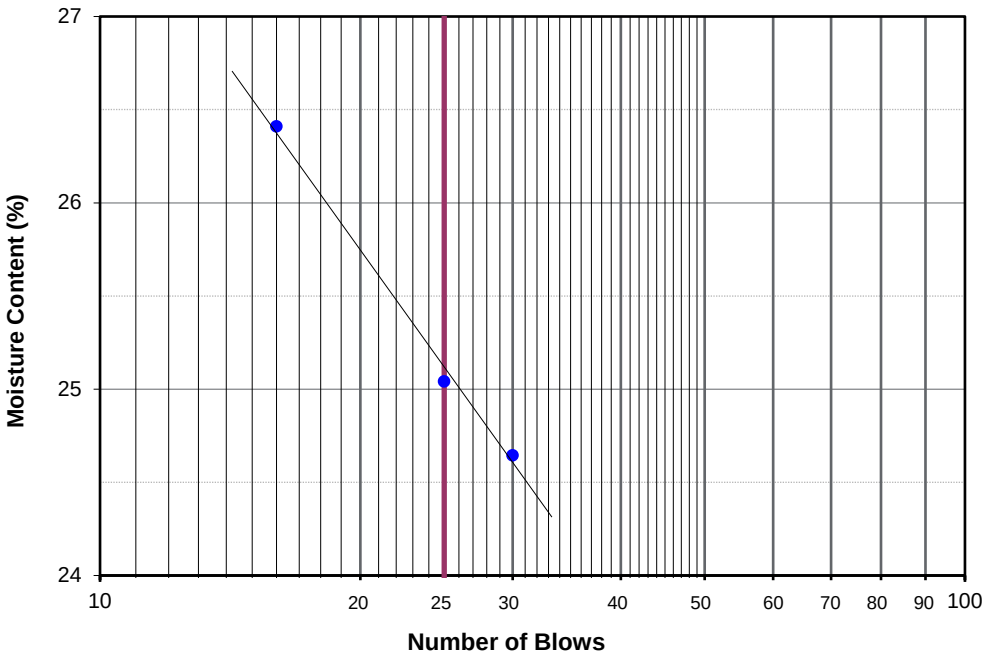
One - Point Liquid Limit Calculation

$LL = Wn(N/25)^{0.12}$



PROCEDURES USED

	Wet Preparation
	Multipoint - Wet
X	Dry Preparation
	Multipoint - Dry
X	Procedure A
	Multipoint Test
	Procedure B
	One-point Test



ATTERBERG LIMITS
ASTM D 4318

Project Name:	McDonald's Buena Park 45199	Tested By:	J. Domingo	Date:	05/08/24
Project No. :	036.0000022433	Input By:	JD/JHW	Date:	05/10/24
Boring No.:	LB-1	Checked By:	J. Ward		
Sample No.:	S-5	Depth (ft.)	40.0		
Soil Identification:	Grayish brown lean clay (CL)				

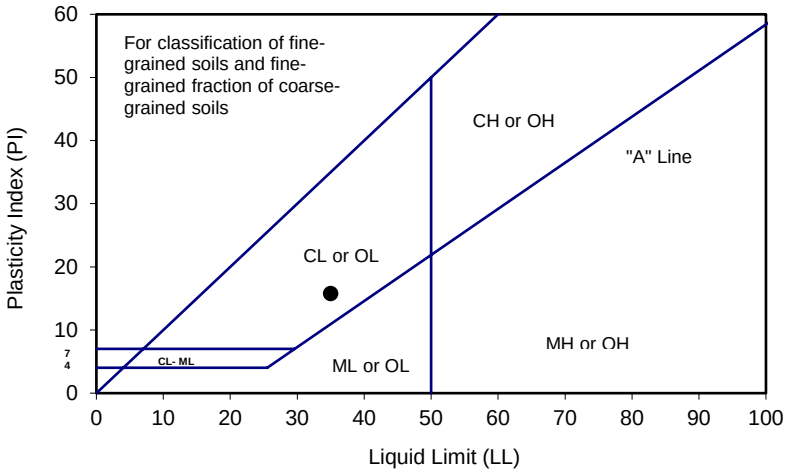
TEST	PLASTIC LIMIT		LIQUID LIMIT			
NO.	1	2	1	2	3	4
Number of Blows [N]			32	23	18	
Wet Wt. of Soil + Cont. (g)	9.82	9.95	23.72	23.09	23.33	
Dry Wt. of Soil + Cont. (g)	8.42	8.50	17.99	17.36	17.41	
Wt. of Container (g)	1.05	1.06	1.10	1.04	1.06	
Moisture Content (%) [Wn]	19.00	19.49	33.93	35.11	36.21	

Liquid Limit	**35**
Plastic Limit	**19**
Plasticity Index	**16**
Type of Fines	**CL**

PI at "A" - Line = 0.73(LL-20) 10.95

One - Point Liquid Limit Calculation

$LL = Wn(N/25)^{0.12}$



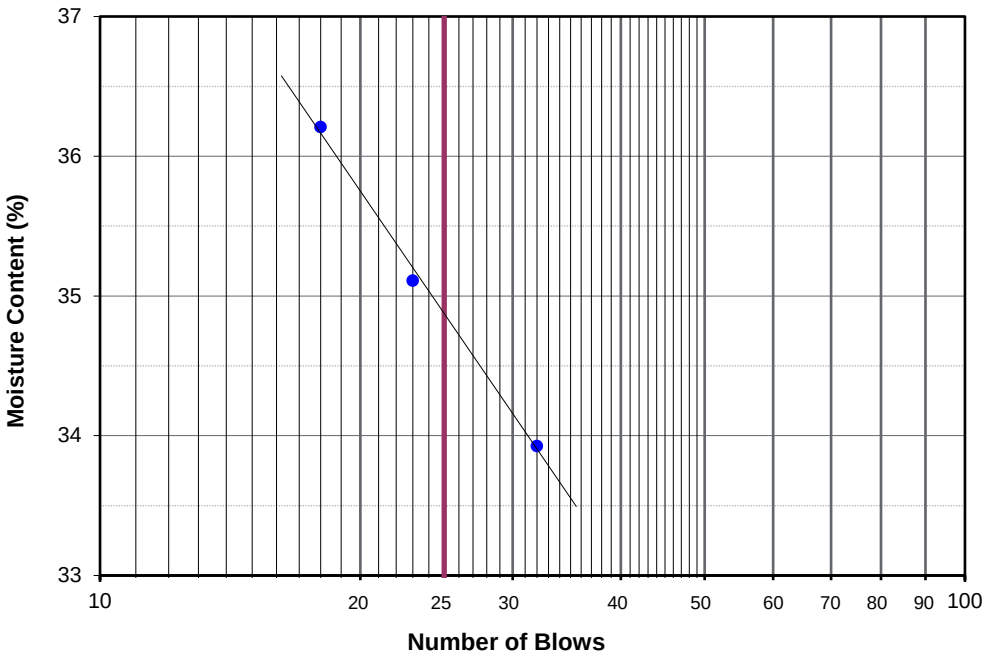
PROCEDURES USED

☐ Wet Preparation
Multipoint - Wet

☒ Dry Preparation
Multipoint - Dry

☒ Procedure A
Multipoint Test

☐ Procedure B
One-point Test

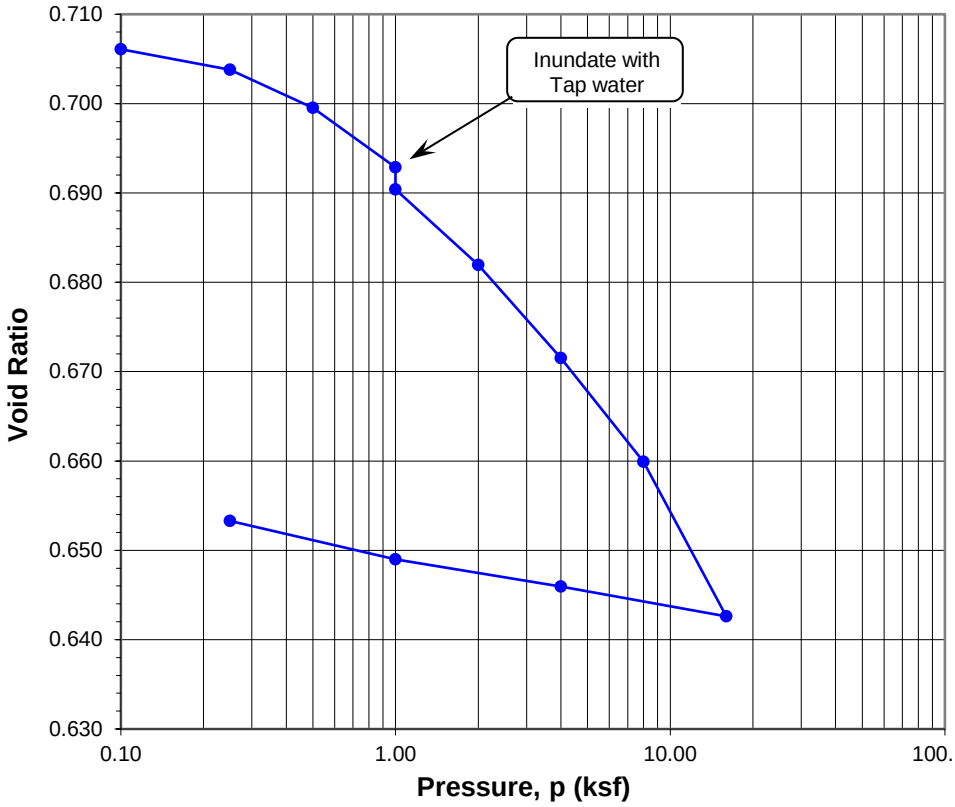


ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS

ASTM D 2435

Project Name:	McDonald's Buena Park 45199		Tested By:	GB/JD	Date: 05/08/24
Project No.:	036.0000022433		Checked By:	J. Ward	Date: 06/03/24
Boring No.:	LB-1		Depth (ft.):	5.0	
Sample No.:	R-1		Sample Type:	Ring	
Soil Identification:	Light olive brown poorly-graded sand (SP)				

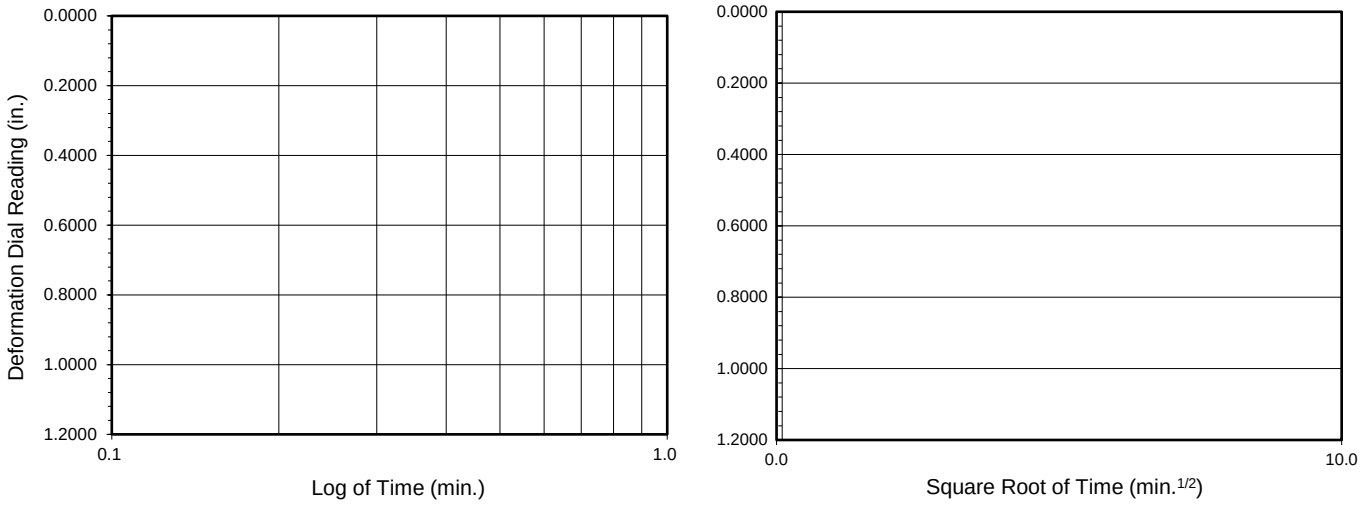
Sample Diameter (in.):	2.415
Sample Thickness (in.):	1.000
Weight of Sample + ring (g):	166.79
Weight of Ring (g):	44.71
Height after consol. (in.):	0.9689
Before Test	
Wt. of Wet Sample+Cont. (g):	165.42
Wt. of Dry Sample+Cont. (g):	162.52
Weight of Container (g):	58.11
Initial Moisture Content (%)	2.8
Initial Dry Density (pcf)	98.8
Initial Saturation (%):	11
Initial Vertical Reading (in.)	0.0777
After Test	
Wt. of Wet Sample+Cont. (g):	246.29
Wt. of Dry Sample+Cont. (g):	223.30
Weight of Container (g):	64.00
Final Moisture Content (%)	20.06
Final Dry Density (pcf):	98.4
Final Saturation (%):	76
Final Vertical Reading (in.)	0.1133
Specific Gravity (assumed):	2.70
Water Density (pcf):	62.43

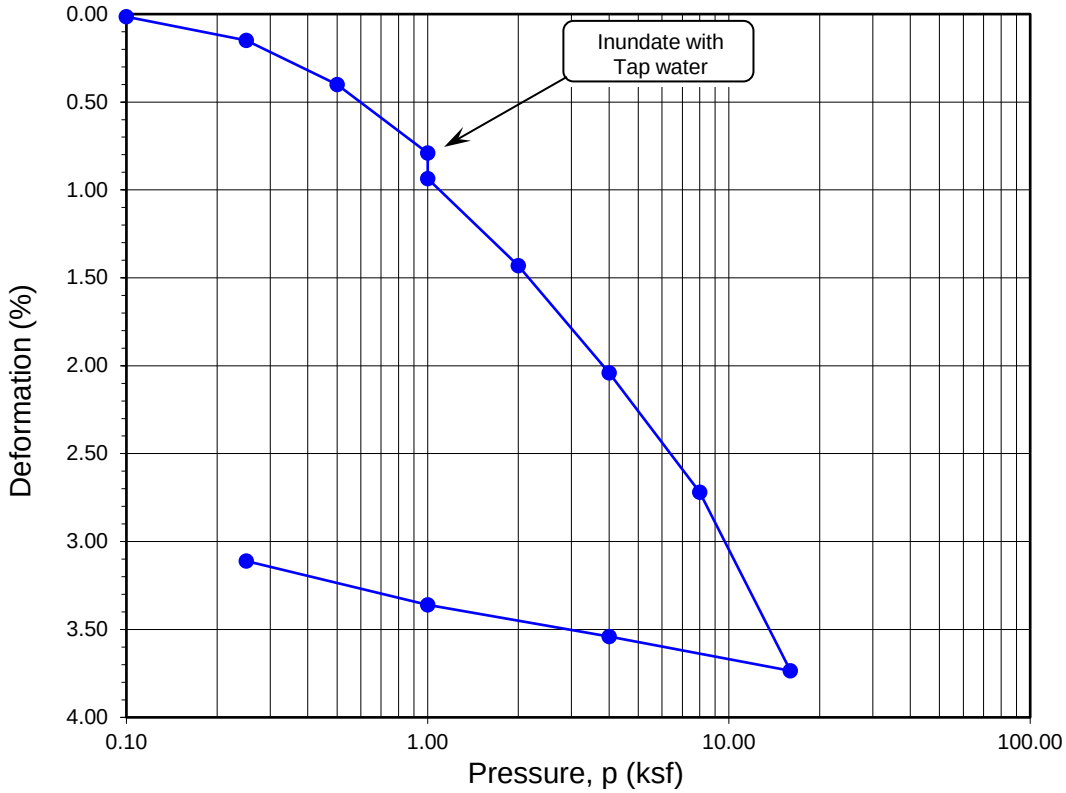


Pressure (p) (ksf)	Final Reading (in.)	Apparent Thickness (in.)	Load Compliance (%)	Deformation % of Sample Thickness	Void Ratio	Corrected Deformation (%)
0.10	0.0779	0.9999	0.00	0.01	0.706	0.01
0.25	0.0798	0.9979	0.06	0.21	0.704	0.15
0.50	0.0830	0.9947	0.13	0.53	0.700	0.40
1.00	0.0880	0.9897	0.24	1.03	0.693	0.79
1.00	0.0895	0.9883	0.24	1.18	0.690	0.94
2.00	0.0958	0.9819	0.38	1.81	0.682	1.43
4.00	0.1036	0.9741	0.55	2.59	0.672	2.04
8.00	0.1123	0.9654	0.74	3.46	0.660	2.72
16.00	0.1248	0.9530	0.97	4.71	0.643	3.74
4.00	0.1205	0.9572	0.74	4.28	0.646	3.54
1.00	0.1169	0.9608	0.56	3.92	0.649	3.36
0.25	0.1133	0.9644	0.45	3.56	0.653	3.11

Time Readings				
Date	Time	Elapsed Time (min)	Square Root of Time	Dial Rdgs. (in.)

Time Readings





Boring No.	Sample No.	Depth (ft.)	Moisture Content (%)		Dry Density (pcf)		Void Ratio		Degree of Saturation (%)	
			Initial	Final	Initial	Final	Initial	Final	Initial	Final
LB-1	**R-1**	**5**	**2.8**	**20.1**	**98.8**	**98.4**	**0.706**	**0.653**	**11**	**76**

Soil Identification: Light olive brown poorly-graded sand (SP)

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ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS
ASTM D 2435

Project No.: 036.0000022433

McDonald's Buena Park 45199

06-24

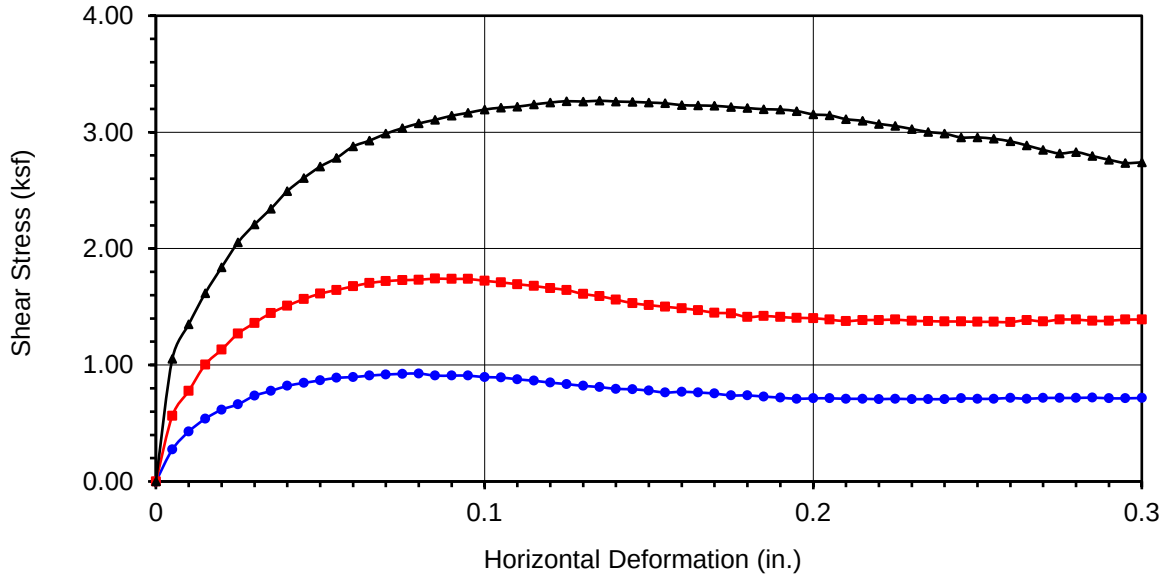
DIRECT SHEAR TEST

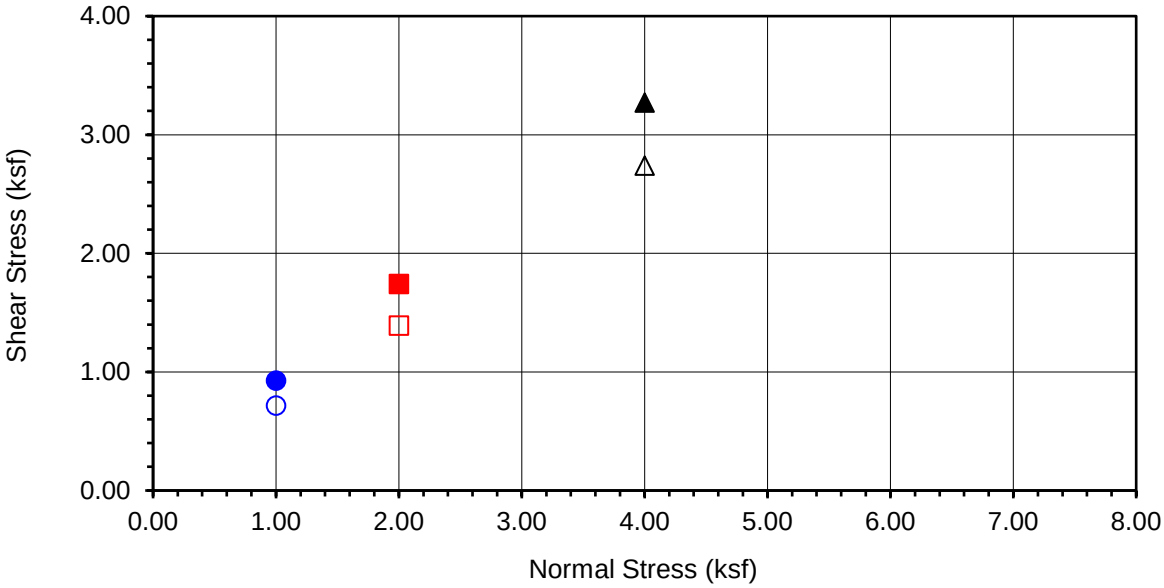
Consolidated Undrained

Project Name:	McDonald's Buena Park 45199	Tested By:	G. Bathala	Date:	05/08/24
Project No.:	036.0000022433	Checked By:	J. Ward	Date:	06/03/24
Boring No.:	LB-1	Sample Type:	Ring		
Sample No.:	R-1	Depth (ft.):	5.0		

Soil Identification: Light olive brown poorly-graded sand (SP)

Sample Diameter(in):	2.415	2.415	2.415
Sample Thickness(in.):	1.000	1.000	1.000
Weight of Sample + ring(gm):	161.87	167.26	171.45
Weight of Ring(gm):	42.09	45.28	44.93
Before Shearing			
Weight of Wet Sample+Cont.(gm):	165.42	165.42	165.42
Weight of Dry Sample+Cont.(gm):	162.52	162.52	162.52
Weight of Container(gm):	58.11	58.11	58.11
Vertical Rdg.(in): Initial	0.0000	0.2588	0.2381
Vertical Rdg.(in): Final	-0.0088	0.2791	0.2648
After Shearing			
Weight of Wet Sample+Cont.(gm):	188.93	200.95	194.19
Weight of Dry Sample+Cont.(gm):	165.27	178.44	173.07
Weight of Container(gm):	57.41	67.75	56.77
Specific Gravity (Assumed):	2.70	2.70	2.70
Water Density(pcf):	62.43	62.43	62.43





Boring No.	**LB-1**
Sample No.	**R-1**
Depth (ft)	**5**
Sample Type: Ring	
Soil Identification: Light olive brown poorly-graded sand (SP)	

Normal Stress (kip/ft²)	1.000	2.000	4.000
Peak Shear Stress (kip/ft²)	● 0.927	■ 1.742	▲ 3.270
Shear Stress @ End of Test (ksf)	○ 0.717	□ 1.390	△ 2.741
Deformation Rate (in./min.)	0.0500	0.0500	0.0500
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	2.78	2.78	2.78
Dry Density (pcf)	96.9	98.7	102.4
Saturation (%)	10.1	10.6	11.6
Soil Height Before Shearing (in.)	0.9912	0.9797	0.9733
Final Moisture Content (%)	21.9	20.3	18.2

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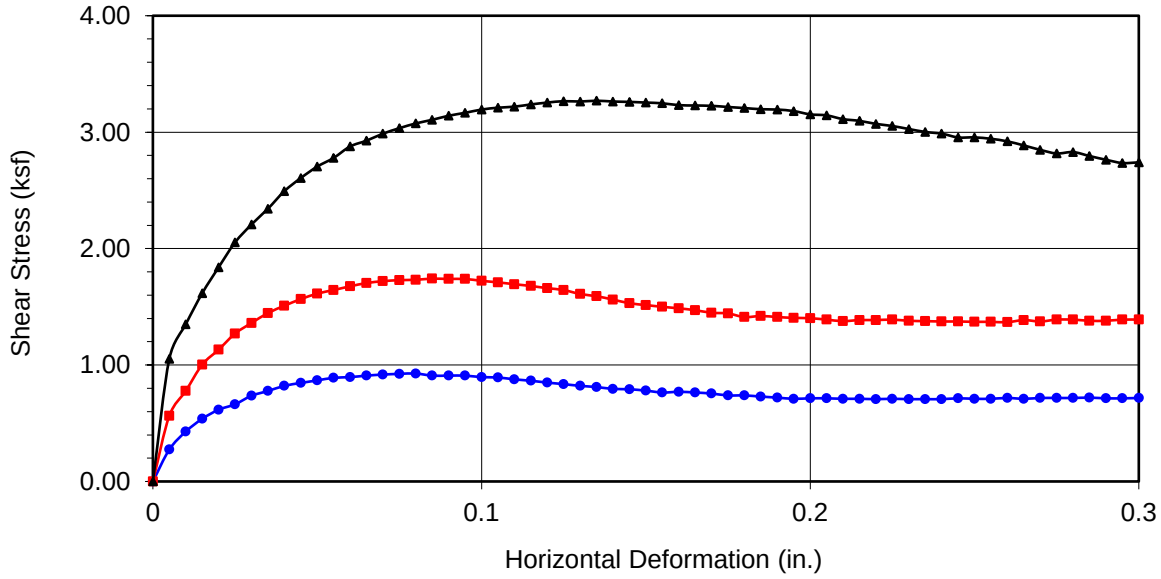
DIRECT SHEAR TEST RESULTS

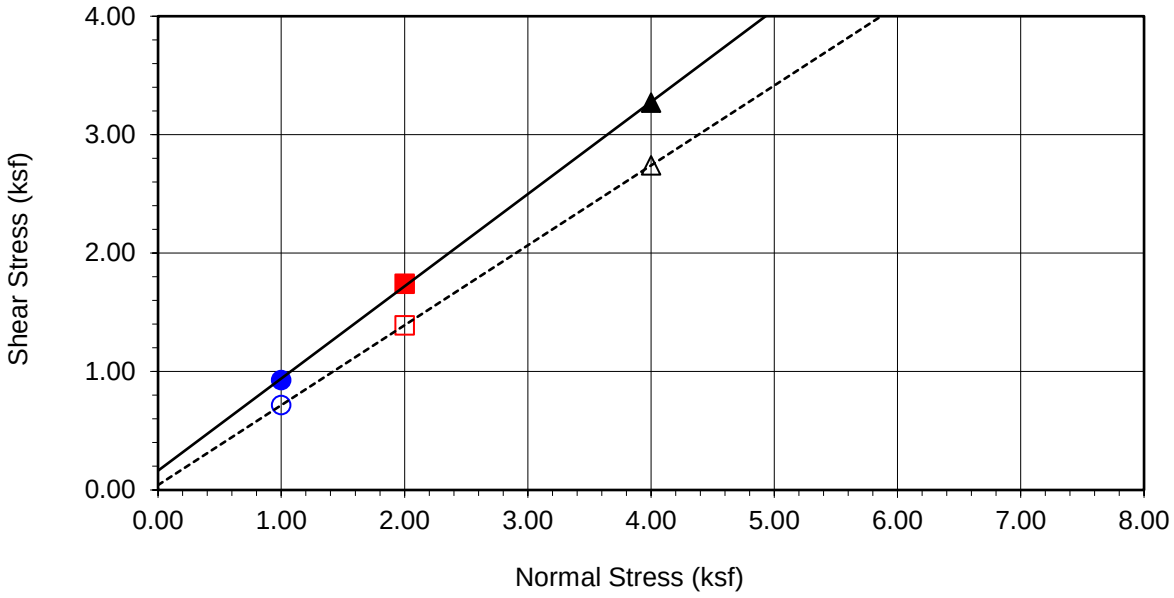
Consolidated Undrained

Project No.: 036.0000022433

McDonald's Buena Park 45199

05-24





Boring No.	**LB-1**
Sample No.	**R-1**
Depth (ft)	**5**
Sample Type:	Ring
Soil Identification:	Light olive brown poorly-graded sand (SP)

Strength Parameters

	C (psf)	ϕ (°)
Peak	163	38
Ultimate	41	34

Normal Stress (kip/ft²)	1.000	2.000	4.000
Peak Shear Stress (kip/ft²)	● 0.927	■ 1.742	▲ 3.270
Shear Stress @ End of Test (ksf)	○ 0.717	□ 1.390	△ 2.741
Deformation Rate (in./min.)	0.0500	0.0500	0.0500
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	2.78	2.78	2.78
Dry Density (pcf)	96.9	98.7	102.4
Saturation (%)	10.1	10.6	11.6
Soil Height Before Shearing (in.)	0.9912	0.9797	0.9733
Final Moisture Content (%)	21.9	20.3	18.2

Leighton

DIRECT SHEAR TEST RESULTS

Consolidated Undrained

Project No.: 036.0000022433

McDonald's Buena Park 45199

05-24

EXPANSION INDEX of SOILS
ASTM D 4829

Project Name:	McDonald's Buena Park 45199	Tested By:	G. Berdy	Date:	05/08/24
Project No.:	036.0000022433	Checked By:	J. Ward	Date:	06/03/24
Boring No.:	LB-1	Depth (ft.):	0-5		
Sample No.:	B-1				
Soil Identification:	Gray poorly-graded sand with silt (SP-SM)				

Dry Wt. of Soil + Cont.	(g)	1000.00
Wt. of Container No.	(g)	0.00
Dry Wt. of Soil	(g)	1000.00
Weight Soil Retained on #4 Sieve		0.00
Percent Passing # 4		100.00

MOLDED SPECIMEN		Before Test	After Test
Specimen Diameter	(in.)	4.01	4.01
Specimen Height	(in.)	1.0000	0.9980
Wt. Comp. Soil + Mold	(g)	594.00	424.98
Wt. of Mold	(g)	190.00	0.00
Specific Gravity (Assumed)		2.70	2.70
Container No.		O	O
Wet Wt. of Soil + Cont.	(g)	815.20	614.98
Dry Wt. of Soil + Cont.	(g)	746.50	559.99
Wt. of Container	(g)	0.00	190.00
Moisture Content	(%)	9.20	14.86
Wet Density	(pcf)	121.9	128.4
Dry Density	(pcf)	111.6	111.8
Void Ratio		0.511	0.508
Total Porosity		0.338	0.337
Pore Volume	(cc)	70.0	69.5
Degree of Saturation (%) [S_{meas}]		**48.7**	79.1

SPECIMEN INUNDATION in distilled water for the period of 24 h or expansion rate < 0.0002 in./h

Date	Time	Pressure (psi)	Elapsed Time (min.)	Dial Readings (in.)
05/08/24	11:37	1.0	0	0.5040
05/08/24	11:47	1.0	10	0.5040
Add Distilled Water to the Specimen				
05/08/24	13:12	1.0	85	0.5035
05/09/24	6:00	1.0	1093	0.5020
05/09/24	8:06	1.0	1219	0.5020

Expansion Index (EI_{meas}) = ((Final Rdg - Initial Rdg) / Initial Thick.) x 1000	**0**

TESTS for SULFATE CONTENT
CHLORIDE CONTENT and pH of SOILS

Project Name: McDonald's Buena Park 45199 Tested By : G. Berdy Date: 05/08/24

Project No. : 036.0000022433 Checked By: J. Ward Date: 06/03/24

Boring No.	LB-1			
Sample No.	B-1			
Sample Depth (ft)	0-5			
Soil Identification:	Gray SP-SM			
Wet Weight of Soil + Container (g)	0.00			
Dry Weight of Soil + Container (g)	0.00			
Weight of Container (g)	1.00			
Moisture Content (%)	0.00			
Weight of Soaked Soil (g)	100.45			

SULFATE CONTENT, DOT California Test 417, Part II

Beaker No.	10			
Crucible No.	301			
Furnace Temperature (°C)	860			
Time In / Time Out	8:00/8:45			
Duration of Combustion (min)	45			
Wt. of Crucible + Residue (g)	61.9072			
Wt. of Crucible (g)	61.9069			
Wt. of Residue (g) (A)	0.0003			
PPM of Sulfate (A) x 41150	12.35			
PPM of Sulfate, Dry Weight Basis	**12**			

CHLORIDE CONTENT, DOT California Test 422

ml of Extract For Titration (B)	15			
ml of AgNO3 Soln. Used in Titration (C)	0.6			
PPM of Chloride (C -0.2) * 100 * 30 / B	80			
PPM of Chloride, Dry Wt. Basis	**80**			

pH TEST, DOT California Test 643

pH Value	**8.27**			
Temperature °C	19.5			

SOIL RESISTIVITY TEST

DOT CA TEST 643

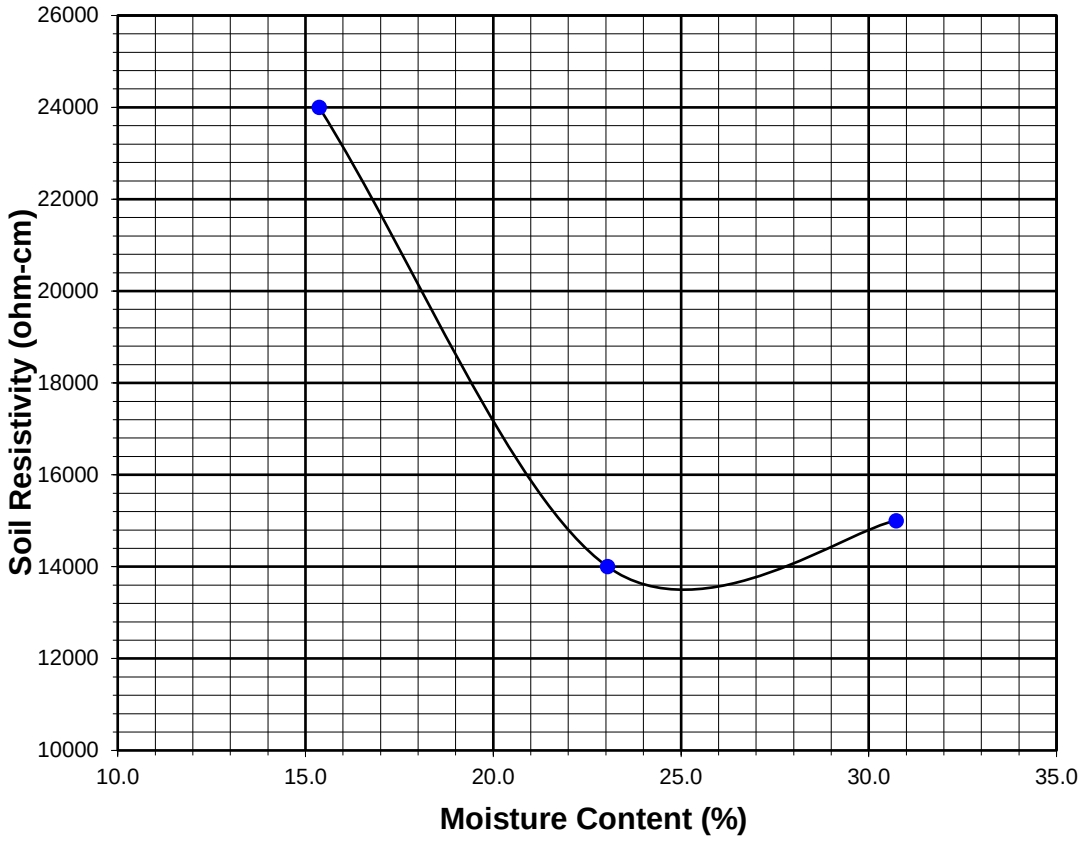
Project Name:	McDonald's Buena Park 45199		Tested By :	G. Berdy	Date: 05/09/24
Project No. :	036.0000022433		Checked By:	J. Ward	Date: 06/03/24
Boring No.:	LB-1		Depth (ft.) :	0-5	
Sample No. :	B-1				
Soil Identification:*	Gray SP-SM				

*California Test 643 requires soil specimens to consist only of portions of samples passing through the No. 8 US Standard Sieve before resistivity testing. Therefore, this test method may not be representative for coarser materials.

Specimen No.	Water Added (ml) (Wa)	Adjusted Moisture Content (MC)	Resistance Reading (ohm)	Soil Resistivity (ohm-cm)
1	20	15.36	24000	24000
2	30	23.05	14000	14000
3	40	30.73	15000	15000
4				
5				

Moisture Content (%) (MCi)	0.00
Wet Wt. of Soil + Cont. (g)	0.00
Dry Wt. of Soil + Cont. (g)	0.00
Wt. of Container (g)	1.00
Container No.	
Initial Soil Wt. (g) (Wt)	130.17
Box Constant	1.000
MC =(((1+Mci/100)x(Wa/Wt+1))-1)x100	

Min. Resistivity (ohm-cm)	Moisture Content (%)	Sulfate Content (ppm)	Chloride Content (ppm)	Soil pH	
				pH	Temp. (°C)
DOT CA Test 643		DOT CA Test 417 Part II	DOT CA Test 422	DOT CA Test 643	
13500	**25.0**	**12**	**80**	**8.27**	**19.5**



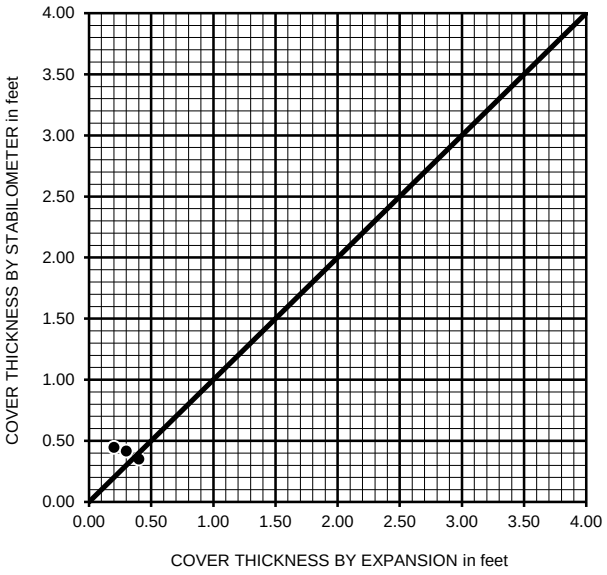
R-VALUE TEST RESULTS
DOT CA Test 301

PROJECT NAME:	McDonald's Buena Park 45199	PROJECT NUMBER:	036.0000022433
BORING NUMBER:	LB-2	DEPTH (FT.):	0-5
SAMPLE NUMBER:	B-1	TECHNICIAN:	O. Figueroa
SAMPLE DESCRIPTION:	Brown silty sand (SM)	DATE COMPLETED:	5/14/2024

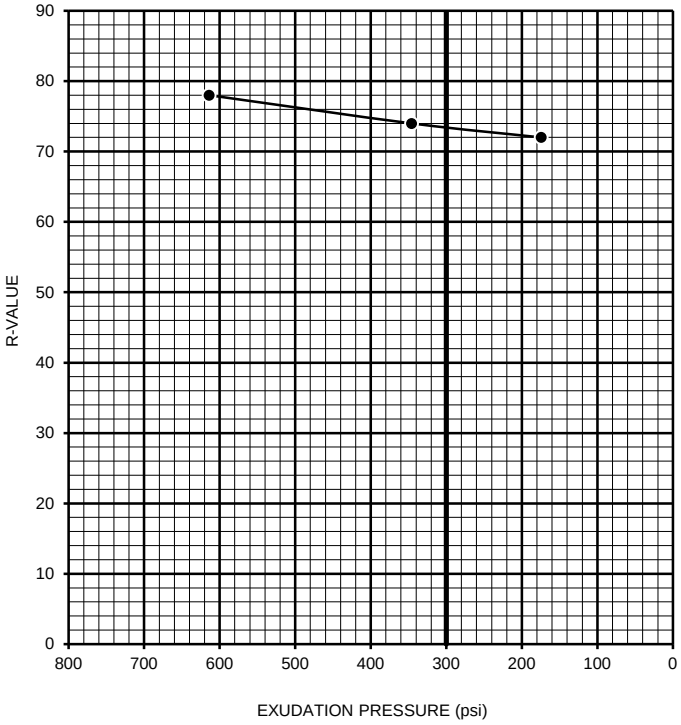
TEST SPECIMEN	a	b	c
MOISTURE AT COMPACTION %	11.2	11.6	12.5
HEIGHT OF SAMPLE, Inches	2.43	2.46	2.49
DRY DENSITY, pcf	115.4	114.9	112.7
COMPACTOR PRESSURE, psi	350	300	275
EXUDATION PRESSURE, psi	614	346	174
EXPANSION, Inches x 10exp-4	12	9	6
STABILITY Ph 2,000 lbs (160 psi)	19	23	25
TURNS DISPLACEMENT	5.05	5.25	5.30
R-VALUE UNCORRECTED	79	74	72
R-VALUE CORRECTED	78	74	72

DESIGN CALCULATION DATA	a	b	c
GRAVEL EQUIVALENT FACTOR	1.0	1.0	1.0
TRAFFIC INDEX	5.0	5.0	5.0
STABILOMETER THICKNESS, ft.	0.35	0.42	0.45
EXPANSION PRESSURE THICKNESS, ft.	0.40	0.30	0.20

EXPANSION PRESSURE CHART



EXUDATION PRESSURE CHART



R-VALUE BY EXPANSION:	76
R-VALUE BY EXUDATION:	73
EQUILIBRIUM R-VALUE:	73

APPENDIX D

LIQUEFACTION ANALYSIS

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Leighton
Geotechnical Engineering Consultants
Irvine, California

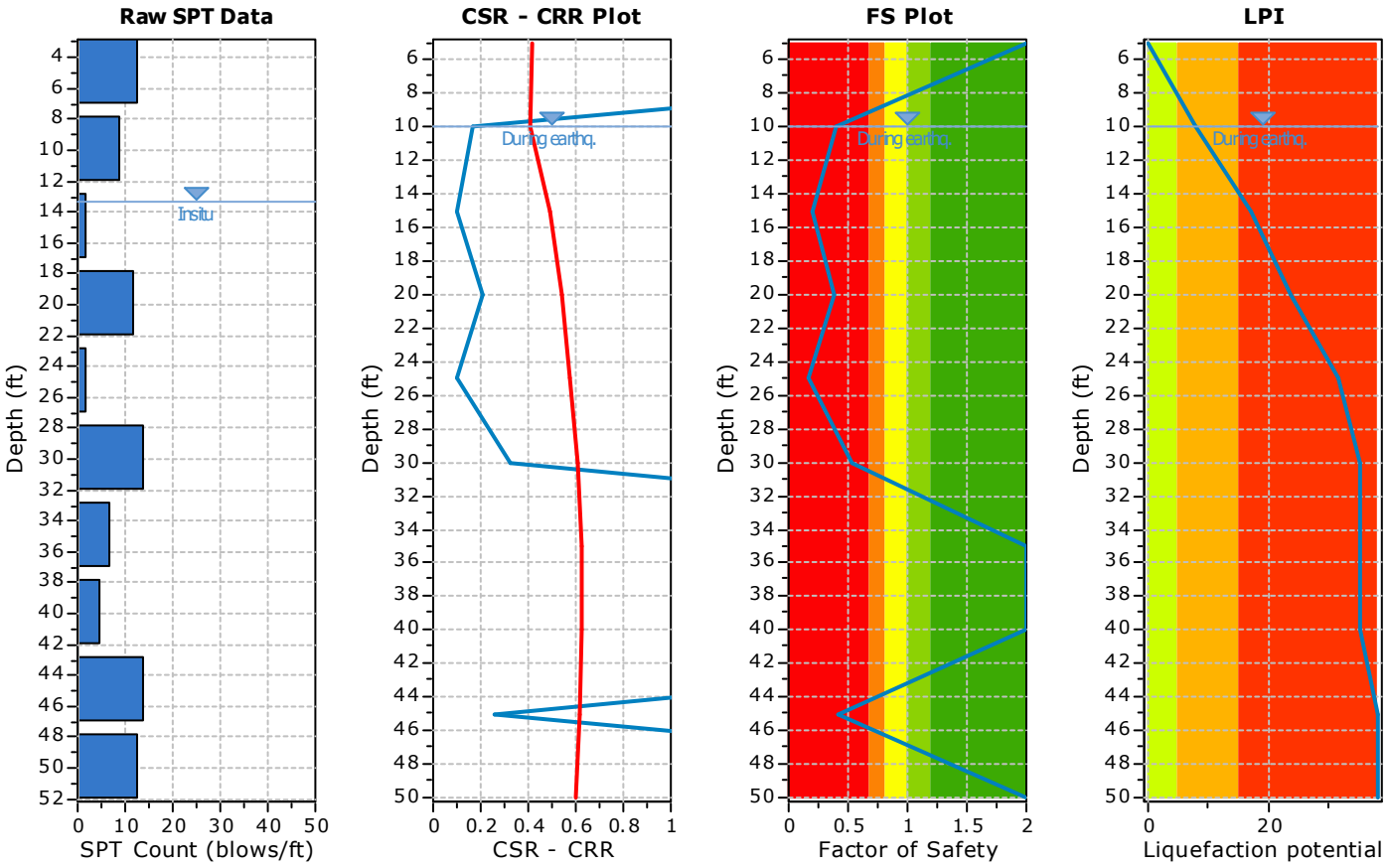
SPT BASED LIQUEFACTION ANALYSIS REPORT

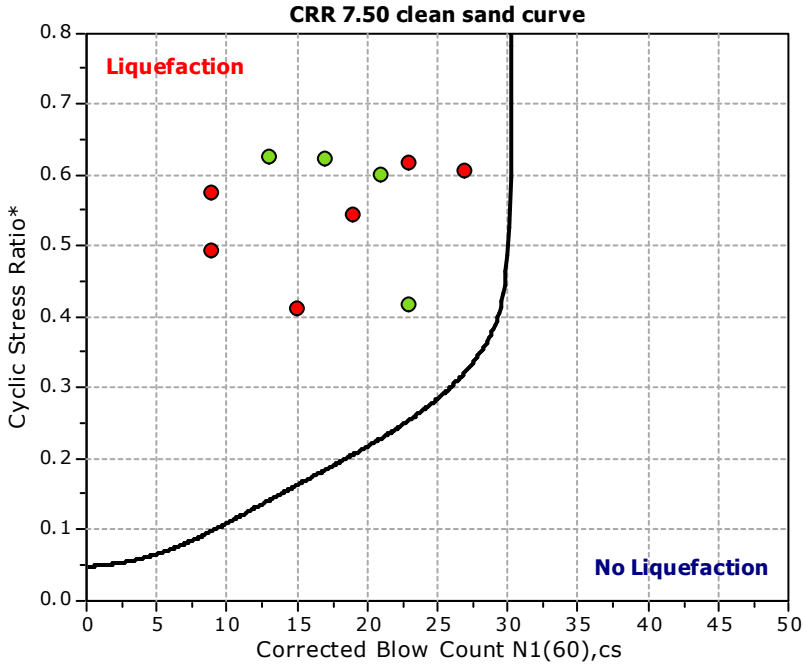
Project title : McDonald's Restaurant Buena Park **SPT Name: LB-1**

Location :

:: Input parameters and analysis properties ::

Analysis method:	NCEER 1998	G.W.T. (in-situ):	13.30 ft
Fines correction method:	NCEER 1998	G.W.T. (earthq.):	10.00 ft
Sampling method:	Sampler wo liners	Earthquake magnitude M_w:	7.31
Borehole diameter:	65mm to 115mm	Peak ground acceleration:	0.69 g
Rod length:	3.30 ft	Eq. external load:	0.00 tsf
Hammer energy ratio:	1.33		





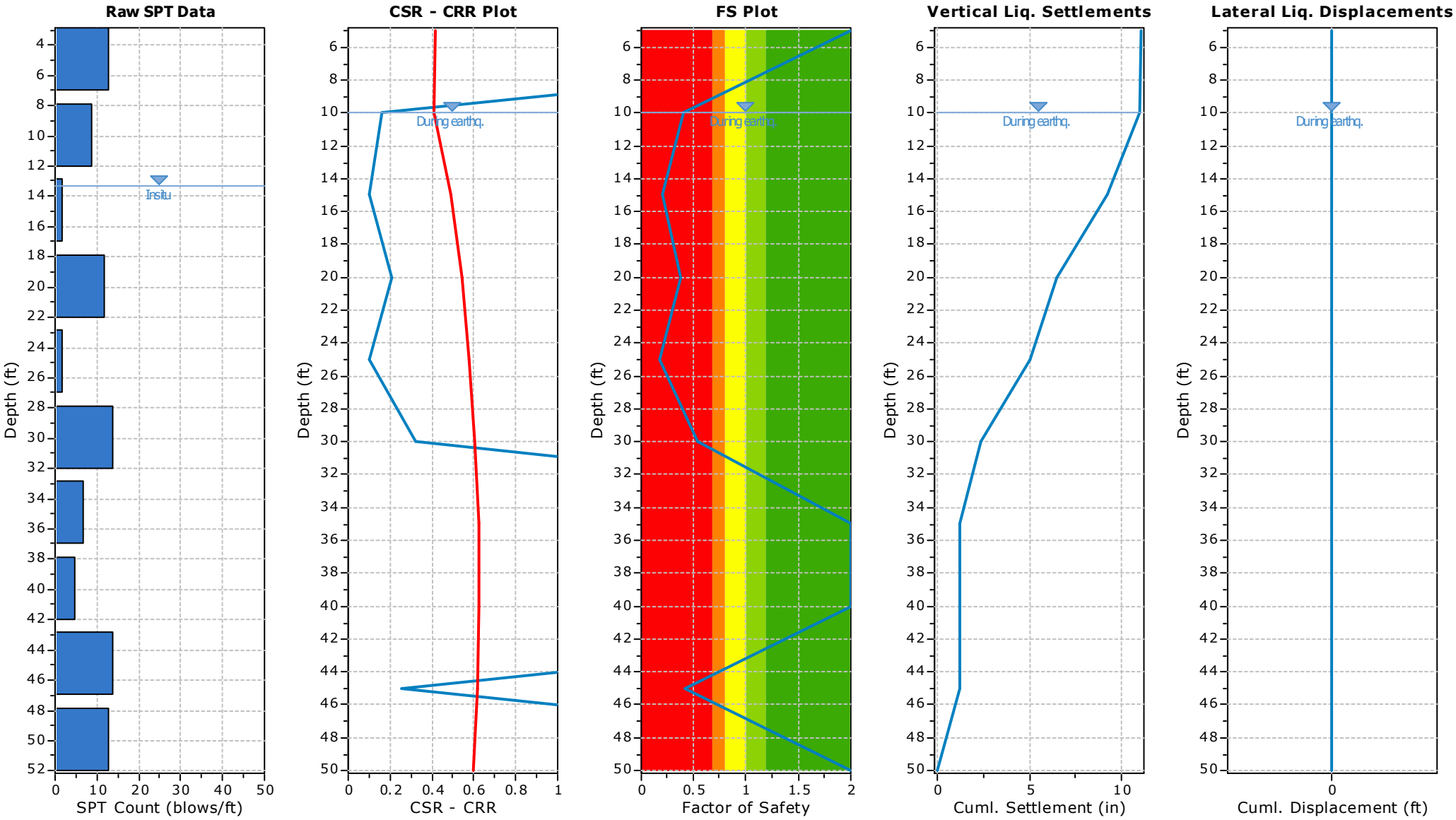
F.S. color scheme

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

LPI color scheme

- Very high risk
- High risk
- Low risk

:: Overall Liquefaction Assessment Analysis Plots ::



:: Field input data ::

Test Depth (ft)	SPT Field Value (blows)	Fines Content (%)	Unit Weight (pcf)	Infl. Thickness (ft)	Can Liquefy
5.00	13	3.00	120.00	5.00	Yes
10.00	9	3.00	120.00	5.00	Yes
15.00	2	60.00	120.00	5.00	Yes
20.00	12	3.00	120.00	5.00	Yes
25.00	2	60.00	120.00	5.00	Yes
30.00	14	25.00	120.00	5.00	Yes
35.00	7	65.00	120.00	5.00	No
40.00	5	65.00	120.00	5.00	No
45.00	14	25.00	120.00	5.00	Yes
50.00	13	25.00	120.00	1.50	Yes

Abbreviations

Depth: Depth at which test was performed (ft)
SPT Field Value: Number of blows per foot
Fines Content: Fines content at test depth (%)
Unit Weight: Unit weight at test depth (pcf)
Infl. Thickness: Thickness of the soil layer to be considered in settlements analysis (ft)
Can Liquefy: User defined switch for excluding/including test depth from the analysis procedure

:: Cyclic Resistance Ratio (CRR) calculation data ::

Depth (ft)	SPT Field Value	Unit Weight (pcf)	σ_v (tsf)	u_o (tsf)	σ'_{vo} (tsf)	C_N	C_E	C_B	C_R	C_S	$(N_1)_{60}$	Fines Content (%)	α	β	$(N_1)_{60cs}$	$CRR_{7.5}$
5.00	13	120.00	0.30	0.00	0.30	1.48	1.33	1.00	0.75	1.20	23	3.00	0.00	1.00	23	4.000
10.00	9	120.00	0.60	0.00	0.60	1.25	1.33	1.00	0.85	1.20	15	3.00	0.00	1.00	15	0.163
15.00	2	120.00	0.90	0.05	0.85	1.10	1.33	1.00	0.85	1.20	3	60.00	5.00	1.20	9	0.099
20.00	12	120.00	1.20	0.21	0.99	1.03	1.33	1.00	0.95	1.20	19	3.00	0.00	1.00	19	0.206
25.00	2	120.00	1.50	0.37	1.13	0.97	1.33	1.00	0.95	1.20	3	60.00	5.00	1.20	9	0.099
30.00	14	120.00	1.80	0.52	1.28	0.91	1.33	1.00	1.00	1.20	20	25.00	4.29	1.11	27	0.323
35.00	7	120.00	2.10	0.68	1.42	0.86	1.33	1.00	1.00	1.20	10	65.00	5.00	1.20	17	4.000
40.00	5	120.00	2.40	0.83	1.57	0.82	1.33	1.00	1.00	1.20	7	65.00	5.00	1.20	13	4.000
45.00	14	120.00	2.70	0.99	1.71	0.78	1.33	1.00	1.00	1.20	17	25.00	4.29	1.11	23	0.255
50.00	13	120.00	3.00	1.15	1.85	0.74	1.33	1.00	1.00	1.20	15	25.00	4.29	1.11	21	4.000

Abbreviations

σ_v: Total stress during SPT test (tsf)
u_o: Water pore pressure during SPT test (tsf)
σ'_{vo}: Effective overburden pressure during SPT test (tsf)
C_N: Overburden corretion factor
C_E: Energy correction factor
C_B: Borehole diameter correction factor
C_R: Rod length correction factor
C_S: Liner correction factor
$N_{1(60)}$: Corrected N_{SPT} to a 60% energy ratio
α, β: Clean sand equivalent clean sand formula coefficients
$N_{1(60)cs}$: Corected $N_{1(60)}$ value for fines content
$CRR_{7.5}$: Cydic resistance ratio for M=7.5

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) ::

Depth (ft)	Unit Weight (pcf)	$\sigma_{v,eq}$ (tsf)	$u_{o,eq}$ (tsf)	$\sigma'_{vo,eq}$ (tsf)	r_d	α	CSR	MSF	$CSR_{eq,M=7.5}$	K_{sigma}	CSR^*	FS	
5.00	120.00	0.30	0.00	0.30	0.99	1.00	0.444	1.07	0.416	1.00	0.416	2.000	●
10.00	120.00	0.60	0.00	0.60	0.98	1.00	0.439	1.07	0.411	1.00	0.411	0.397	●

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) ::

Depth (ft)	Unit Weight (pcf)	$\sigma_{v,eq}$ (tsf)	$u_{o,eq}$ (tsf)	$\sigma'_{vo,eq}$ (tsf)	r_d	α	CSR	MSF	$CSR_{eq,M=7.5}$	K_{sigma}	CSR^*	FS	
15.00	120.00	0.90	0.16	0.74	0.97	1.00	0.525	1.07	0.492	1.00	0.492	0.202	●
20.00	120.00	1.20	0.31	0.89	0.96	1.00	0.580	1.07	0.543	1.00	0.543	0.380	●
25.00	120.00	1.50	0.47	1.03	0.94	1.00	0.614	1.07	0.575	1.00	0.575	0.173	●
30.00	120.00	1.80	0.62	1.18	0.92	1.00	0.632	1.07	0.592	0.98	0.605	0.534	●
35.00	120.00	2.10	0.78	1.32	0.89	1.00	0.635	1.07	0.595	0.96	0.622	2.000	●
40.00	120.00	2.40	0.94	1.46	0.85	1.00	0.626	1.07	0.586	0.94	0.625	2.000	●
45.00	120.00	2.70	1.09	1.61	0.80	1.00	0.605	1.07	0.567	0.92	0.616	0.414	●
50.00	120.00	3.00	1.25	1.75	0.75	1.00	0.578	1.07	0.542	0.90	0.599	2.000	●

Abbreviations

$\sigma_{v,eq}$: Total overburden pressure at test point, during earthquake (tsf)
$u_{o,eq}$: Water pressure at test point, during earthquake (tsf)
$\sigma'_{vo,eq}$: Effective overburden pressure, during earthquake (tsf)
r_d : Nonlinear shear mass factor
α: Improvement factor due to stone columns
CSR : Cyclic Stress Ratio (adjusted for improvement)
MSF : Magnitude Scaling Factor
$CSR_{eq,M=7.5}$: CSR adjusted for M=7.5
K_{sigma}: Effective overburden stress factor
CSR^*: CSR fully adjusted (user FS applied) ***
FS: Calculated factor of safety against soil liquefaction

*** User FS: 1.00

:: Liquefaction potential according to Iwasaki ::

Depth (ft)	FS	F	wz	Thickness (ft)	I_L
5.00	2.000	0.00	9.24	5.00	0.00
10.00	0.397	0.60	8.48	5.00	7.79
15.00	0.202	0.80	7.71	5.00	9.38
20.00	0.380	0.62	6.95	5.00	6.57
25.00	0.173	0.83	6.19	5.00	7.80
30.00	0.534	0.47	5.43	5.00	3.85
35.00	2.000	0.00	4.67	5.00	0.00
40.00	2.000	0.00	3.90	5.00	0.00
45.00	0.414	0.59	3.14	5.00	2.81
50.00	2.000	0.00	2.38	5.00	0.00

Overall potential I_L : 38.20

I_L = 0.00 - No liquefaction
I_L between 0.00 and 5 - Liquefaction not probable
I_L between 5 and 15 - Liquefaction probable
I_L > 15 - Liquefaction certain

:: Vertical settlements estimation for dry sands ::

Depth (ft)	$(N_1)_{60}$	τ_{av}	p	G_{max} (tsf)	α	b	γ	ε_{15}	N_c	ε_{Nc} (%)	Δh (ft)	ΔS (in)
5.00	23	0.13	0.20	569.92	0.14	13179.75	0.00	0.00	13.43	0.07	5.00	0.079

:: Vertical settlements estimation for dry sands ::

Depth (ft)	$(N_1)_{60}$	τ_{av}	p	G_{max} (tsf)	α	b	γ	ε_{15}	N_c	ε_{Nc} (%)	Δh (ft)	ΔS (in)

Cumulative settlemetns: 0.079

Abbreviations

τ_{av}: Average cyclic shear stress
p: Average stress
G_{max}: Maximum shear modulus (tsf)
α, b: Shear strain formula variables
γ: Average shear strain
ε_{15}: Volumetric strain after 15 cycles
N_c: Number of cycles
ε_{Nc}: Volumetric strain for number of cycles N_c (%)
Δh: Thickness of soil layer (in)
ΔS: Settlement of soil layer (in)

:: Vertical settlements estimation for saturated sands ::

Depth (ft)	D_{50} (in)	q_c/N	e_v (%)	Δh (ft)	s (in)
10.00	0.00	5.00	2.96	5.00	1.775
15.00	0.00	5.00	4.50	5.00	2.698
20.00	0.00	5.00	2.44	5.00	1.462
25.00	0.00	5.00	4.50	5.00	2.698
30.00	0.00	5.00	1.83	5.00	1.096
35.00	0.00	5.00	0.00	5.00	0.000
40.00	0.00	5.00	0.00	5.00	0.000
45.00	0.00	5.00	2.08	5.00	1.250
50.00	0.00	5.00	0.00	1.50	0.000

Cumulative settlements: 10.981

Abbreviations

D_{50}: Median grain size (in)
q_c/N: Ratio of cone resistance to SPT
e_v: Post liquefaction volumetric strain (%)
Δh: Thickness of soil layer to be considered (ft)
s: Estimated settlement (in)

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APPENDIX E

IMPORTANT INFORMATION ABOUT THIS GEOTECHNICAL-ENGINEERING REPORT

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept*

responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals' plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for information purposes only.* To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer's services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration*** by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

GEOPROFESSIONAL BUSINESS ASSOCIATION

Telephone: 301/565-2733
e-mail: info@geoprofessional.org www.geoprofessional.org