

Appendix C Water Quality Management Plan

Appendices

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Water Quality Management Plan (WQMP)

Project Name:

**Fullerton Joint Union High School District
School Bus Depot
1050 S. Leslie Street, La Habra, California**

Prepared for:

**Fullerton Joint Union High School District
c/o**

**Katahdin Environmental
1644 N. El Camino Real
San Clemente, CA 92672
Phone: 949-885-9890**

Prepared by:

EPD Consultants, Inc.

Engineer: Kevin Poffenbarger, P.E., Registration No.69089

**20722 Main Street
Carson, California 90745
Phone: 310-241-6565**

March 22, 2016



Project Owner's Certification			
Permit/Application No.		Grading Permit No.	
Tract/Parcel Map No.	Tract 1304	Building Permit No.	
CUP, SUP, and/or APN (Specify Lot Numbers if Portions of Tract)			01911167 (Lot 9)

This Water Quality Management Plan (WQMP) has been prepared for Fullerton Joint Union High School District c/o Katahdin Environmental by EPD Consultants, Inc. 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:			
Title			
Company			
Address			
Email			
Telephone #			
Signature		Date	



Project Engineer's Certification			
Permit/Application No.		Grading Permit No.	
Tract/Parcel Map No.	Tract 1304	Building Permit No.	
CUP, SUP, and/or APN (Specify Lot Numbers if Portions of Tract)			01911167 (Lot 9)

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Engineer:			
Name	Kevin Poffenbarger, P.E., Registration No.69089		
Title	Senior Project Manager		
Company	EPD Consultants, Inc.		
Address	20722 Main Street		
Email	kevin@epd-net.com		
Telephone #	310-241-6565		
Signature		Date	

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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 Information	
Permit/ Application No.	Tract/Parcel Map No. Tract 1304
Additional Information/ Comments:	Limited redevelopment consisting of relocating driveway, CNG fueling station and equipment and adding Low Impact Development (LID) Best Management Practices (BMPs) consisting of adding impervious surface area and biofiltration planters to an existing bus parking lot and fueling station.
Water Quality Conditions	
Water Quality Conditions (list verbatim)	Water Quality Conditions of Approval will be listed verbatim as provided in the discretionary permit(s) issued by the City.
Watershed-Based Plan Conditions	
Provide applicable conditions from watershed - based plans including WIHMPs and TMDLS.	TMDL - Coyote Creek Metals (copper, lead, zinc)



Section II Project Description

II.1 Project Description

Detailed project description:

- 1) Project areas: The total property area (undisturbed and disturbed area) is 83,084-sqft. The total amount of disturbed area will be 18,240-sqft. There will be two areas affected by the project, (a) 13,712-sqft on western portion of the site and (b) 4,528-sqft on the eastern portion of the site.
 - a) Western Portion of Site: The area affected by the proposed redevelopment on western portion of the site is 13,712-sqft. Two traditional (Non-BMP) planter boxes will add 1,519-sqft of pervious surface. One high removal efficiency biofiltration/biotreatment planter box with an underdrain will add 1,285-cuft of biofiltration/biotreatment BMP volume to the site. 10,908-sqft of impervious concrete surface will remain on the western portion of the site.
 - b) Eastern Portion of Site: Compressed natural gas (CNG) equipment is proposed to be replaced with new equipment and relocated from the southwest corner of the site to the northeast corner of the site. Asphalt in the northeast corner of the site will be replaced with 3,070-sqft of pervious surface (gravel), where the CNG equipment is proposed to be relocated. The CNG equipment will be located above ground on concrete pads. According to the operator, the CNG equipment will be inspected and serviced every other day. If a leak is discovered immediate action will be taken to contain and stop the leak. The oil in the two compressors will be changed annually. Each compressor holds approximately 3 gallons of oil. The compressors are enclosed in a container so any leaks will be self-contained.

1,458-sqft of impervious surface area will remain in the area of the proposed bus washing facility with closed loop water recycling.
- 2) Land uses: The disturbed areas of the site are currently used for fueling equipment and vehicle access (13,712-sqft) and storing school buses, vehicles and equipment (4,528-sqft) of the Fullerton Joint Union High School District. Approximately 50 buses are stored at the site. Gas, diesel and CNG fueling will continue at the site. Existing underground fuel storage tanks will remain in place. Maintenance and service of the buses, equipment and other vehicles occur off-site. The future use will be the same plus the addition of a bus washing station with a closed-loop water recycling system.

The site opens at approximately 5:15 am and closes approximately 4:30pm. Hours may vary.
- 3) Land cover: The area of the site to be disturbed is currently covered with 98% impervious surfaces. Post-redevelopment, the 18,240-sqft of disturbed area at the site will be covered with 67.8% impervious surfaces and 32.2% pervious surfaces.
- 4) Design elements: Addition of biofiltration/biotreatment planter box with an underdrain (1,285-sqft) and additional pervious surface area consisting of conventional planter boxes (1,519-sq-ft) and gravel ground cover (3,070-sqft) for a total pervious surface area of 5,874.



- 5) The site is located about 600-ft north of a concrete channel tributary to Coyote Creek in the Coyote Creek Watershed. Currently, the site drains to the southwest corner of the property where it exists the property and enters the storm drain system.

Description of Proposed Project				
Development Category (Verbatim from WQMP):	Limited Redevelopment			
Project Area (ft ²): <u>18,240</u>	Number of Dwelling Units: <u>None</u>		SIC Code: <u>8211</u>	
Narrative Project Description:	Relocate driveway, CNG fueling station and equipment. Add Low Impact Development (LID) Best Management Practices (BMPs) to existing bus parking lot.			
Project Area	Pervious		Impervious	
	Area (acres or sq ft)	Percentage	Area (acres or sq ft)	Percentage
	Pre-Project Conditions	365	2%	17,875
Post-Project Conditions	5,874	32%	12,366	68%
Drainage Patterns/Connections	The site generally drains to the southwest and has a concrete drainage channel along the length of the southern property line.			



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	
Nutrients	E	The BMP Planter itself is the only potential source of nutrients. No fertilizers will be used.
Heavy Metals	E	
Pathogens (Bacteria/Virus)	E	
Pesticides	E	The BMP Planter itself is the only potential source of pesticides. No pesticides will be used.
Oil and Grease	E	
Toxic Organic Compounds	E	
Trash and Debris	E	



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 in the TGD 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.

According to Susceptibility Analysis of San Gabriel-Coyote Creek, the subject site is in an area of Potential Erosion, Habitat and Physical Structure Susceptibility and located in an area with unstable earth channels (Orange County Watershed Master Planning) indicating an HCOC.

However, the volumes and time of concentration of stormwater runoff for the post-development condition are less than those of the pre-development condition for a 2-year frequency storm event. Therefore, an HCOC does not exist. Post-development runoff volume for a 2-year, 24 hour storm event is 2,191-cuft. Pre-development runoff volume for a 2-year, 24 hour storm event is 2,945-cuft. Post-development time of concentration for a 2-year, 24 hour storm event is 11 minutes, compared to pre-development time of concentration of 10 minutes for the same storm event. Calculations are included as Attachment 3.

The subject site will have more pervious surface post-development (reducing flow from the site) and biofiltration/biotreatment planter boxes will filter, treat and slow the flow of water from the site.

Potential hydromodification impacts will be greatly reduced post-redevelopment.



II.4 Post Development Drainage Characteristics

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

The subject site will connect to the storm drain system on Leslie Street near the southwest corner of the site. South of the site, on Leslie Street, storm water will cross Leslie to the west via a 24-inch steel pipe and then connect to a 36-inch concrete pipe. The concrete pipe takes the storm water south to an 18-ft wide by 8-ft high reinforced concrete drainage channel. The drainage channel takes the storm water west to Coyote Creek. Coyote Creek is a tributary to the San Gabriel River which empties to the Pacific Ocean.

II.5 Property Ownership/Management

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

The subject site is owned by the Fullerton Joint High School District and they will be responsible for the long term maintenance of the project's storm water facilities.



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	La Habra
Location/ Address	1050 S. Leslie Street
	La Habra, California (Vicinity Map, Attachment 1)
Land Use	Parking, fuel terminal
Zoning	M-1 Light Manufacturing
Acreage	1.91 acres (0.40 acres to be disturbed)
Predominant Soil Type	Interbedded sandy silty clay, sand with silt and silty sand.

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	0.90-inch Design Capture Storm Depth (inches)
Topography	Relatively flat with minor slope to southwest
Drainage Patterns/Connections	The site drains to a drainage channel along the southern property line. The drainage channel discharges to the west.
Soil Type, Geology, and Infiltration Properties	The site is underlain by alluvial soils consisting of interbedded sandy silty clay, sand with silt, clay and silty sand.



Site Characteristics (continued)

<i>Hydrogeologic (Groundwater) Conditions</i>	There were 2 soils borings made at the site. Groundwater was found at 25 feet below surface in one of the borings, indicating an area of perched groundwater.
<i>Geotechnical Conditions (relevant to infiltration)</i>	The earth materials were found to be medium dense to very dense.
<i>Off-Site Drainage</i>	Off-site drainage is piped to a reinforced concrete drainage channel.
<i>Utility and Infrastructure Information</i>	The subject site has water and electrical service. Electrical service is pole mounted on the southern property line near the midpoint of the property line. The site has CNG and conventional fueling equipment, including an underground storage tank (UST).

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, Pacific Ocean
303(d) Listed Impairments	Bacteria Indicators/Pathogens, Nutrients, Pesticides, Toxicity
Applicable TMDLs	Metals
Pollutants of Concern for the Project	Bacteria Indicators/Pathogens, Nutrients, Pesticides, Toxicity
Environmentally Sensitive and Special Biological Significant Areas	The project is not within or adjacent to an ESA and does not discharge pollutants directly to an ESA.



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:

- The project does not have an approved WIHMP or equivalent.
- According to the Model WQMP for Orange County, the project may be considered an above ground lined drainage facility. As proscribed by the Model WQMP, we have incorporated US EPA guidance from the EPA document, “Managing Wet Weather with Green Infrastructure: Green Streets”.
- 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.*

<p>(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?</p>	<p>YES <input type="checkbox"/></p>	<p>NO <input checked="" type="checkbox"/></p>
<p>If yes, describe WIHMP feasibility criteria or regional/sub-regional LID opportunities.</p>		



Project Performance Criteria (continued)

<p>If HCOC exists, list applicable hydromodification control performance criteria (Section 7.II-2.4.2.2 in MWQMP)</p>	<p>An HCOC does not exist. The volumes and time of concentration of stormwater runoff for the post-development condition are less than those of the pre-development condition for a 2-year, 24 hour storm event.</p>
<p>List applicable LID performance criteria (Section 7.II-2.4.3 from MWQMP)</p>	<p>Priority Projects must infiltrate, harvest and use, evapotranspire, or biotreat/biofilter, the 85th percentile, 24-hour storm event (Design Capture Volume).</p>
<p>List applicable treatment control BMP performance criteria (Section 7.II-3.2.2 from MWQMP)</p>	<p>Satisfaction of LID performance criteria also fully satisfies treatment control performance criteria. The project will meet LID performance criteria.</p>
<p>Calculate LID design storm capture volume for Project.</p>	<p> $DCV = C \times d \times A$ $A = .419 \text{ acre (18,240-sqft)}$ $d = .075\text{-ft} = 0.90\text{-in}/12\text{-in}/\text{ft}$ (0.90 is from the OC Technical Guidance Document, Figure XVI-1 Rainfall Zones (Attachment 2)) $C = .658 = 0.75 \times .284 \text{ acre} + 0.15$ $DCV = 901\text{-cuft} = .658 \times 0.075\text{-ft} \times .419 \text{ acre}$ Calculations are provided (Attachment 3). </p>



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 (Low Impact Development 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.

The existing 100% impervious surface site drains to the southwest. Runoff is collected in a concrete drainage channel that runs along the southern property line and discharges to the street at the western property boundary.

Post-redevelopment, the site will continue to drain to the southwest corner of the property. Stormwater that collects in the bus washing area will be pumped out and conveyed by pipe to the biofiltration/biotreatment planter box to be located at southwest corner of the property. Runoff from the disturbed area on the western portion of the site will flow to the biofiltration/biotreatment planter box. The filtered water will then be pumped to the storm drain. The Design Capture Volume for the drainage area is 901-cuft.

Calculations are included as Attachment 3.

Enclosed please find the WQMP plot plan titled, "Low Impact Development Plan".



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	<input type="checkbox"/>
Impervious area dispersion (e.g. roof top disconnection)	<input type="checkbox"/>
Street trees (canopy interception)	<input type="checkbox"/>
Residential rain barrels (not actively managed)	<input type="checkbox"/>
Green roofs/Brown roofs	<input type="checkbox"/>
Blue roofs	<input type="checkbox"/>
Impervious area reduction (e.g. permeable pavers, site design)	<input checked="" type="checkbox"/>
Other:	<input type="checkbox"/>
Other:	<input type="checkbox"/>
Other:	<input type="checkbox"/>
Other:	<input type="checkbox"/>
Other:	<input type="checkbox"/>
Other:	<input type="checkbox"/>
Other:	<input type="checkbox"/>
Other:	<input type="checkbox"/>



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	<input type="checkbox"/>
Rain gardens	<input type="checkbox"/>
Porous landscaping	<input type="checkbox"/>
Infiltration planters	<input type="checkbox"/>
Retention swales	<input type="checkbox"/>
Infiltration trenches	<input type="checkbox"/>
Infiltration basins	<input type="checkbox"/>
Drywells	<input type="checkbox"/>
Subsurface infiltration galleries	<input type="checkbox"/>
French drains	<input type="checkbox"/>
Permeable asphalt	<input type="checkbox"/>
Permeable concrete	<input type="checkbox"/>
Permeable concrete pavers	<input type="checkbox"/>
Other:	<input type="checkbox"/>
Other:	<input type="checkbox"/>

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.

The site has a fueling station, including underground storage tanks. Per Table VIII.1 of the Orange County Technical Guidance Document Appendix VIII, Infiltration is prohibited for fueling stations under all conditions.



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; <i>See Section IV.3.1</i>	<input type="checkbox"/>
Surface-based infiltration BMPs	<input checked="" type="checkbox"/>
Biotreatment BMPs	<input checked="" type="checkbox"/>
Above-ground cisterns and basins	<input type="checkbox"/>
Underground detention	<input type="checkbox"/>
Other:	<input type="checkbox"/>
Other:	<input type="checkbox"/>
Other:	<input type="checkbox"/>

Show calculations below to demonstrate if the LID Design Storm 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.

The site has a fueling station, including underground storage tanks. It is not economically feasible to remove the pollutants of concern to the degree necessary for rain water harvesting.



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	<input type="checkbox"/>
Stormwater planter boxes with underdrains	<input checked="" type="checkbox"/>
Rain gardens with underdrains	<input type="checkbox"/>
Constructed wetlands	<input type="checkbox"/>
Vegetated swales	<input type="checkbox"/>
Vegetated filter strips	<input type="checkbox"/>
Proprietary vegetated biotreatment systems	<input type="checkbox"/>
Wet extended detention basin	<input type="checkbox"/>
Dry extended detention basins	<input type="checkbox"/>
Other:	<input type="checkbox"/>
Other:	<input type="checkbox"/>

Show calculations below to demonstrate if the LID Design Storm 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 LID Design Storm Capture Volume can be met with biotreatment BMPs. Calculations are provided (Attachment 3).



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

Hydromodification BMPs are not required. See Section II.3 of this WQMP.



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
None.

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



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	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
N2	Activity Restrictions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
N3	Common Area Landscape Management	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
N4	BMP Maintenance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
N5	Title 22 CCR Compliance (How development will comply)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
N6	Local Industrial Permit Compliance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
N7	Spill Contingency Plan	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
N8	Underground Storage Tank Compliance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
N9	Hazardous Materials Disclosure Compliance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
N10	Uniform Fire Code Implementation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
N11	Common Area Litter Control	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
N12	Employee Training	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
N13	Housekeeping of Loading Docks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	There are no loading docks.
N14	Common Area Catch Basin Inspection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
N15	Street Sweeping Private Streets and Parking Lots	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
N16	Retail Gasoline Outlets	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No retail gas sales.



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	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
S2	Design and construct outdoor material storage areas to reduce pollution introduction	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
S3	Design and construct trash and waste storage areas to reduce pollution introduction	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
S4	Use efficient irrigation systems & landscape design, water conservation, smart controllers, and source control	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
S5	Protect slopes and channels and provide energy dissipation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Incorporate requirements applicable to individual priority project categories (from SDRWQCB NPDES Permit)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
S6	Dock areas	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No dock areas.
S7	Maintenance bays	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No maintenance bays.
S8	Vehicle wash areas	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No vehicle washing.
S9	Outdoor processing areas	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No outdoor processing.
S10	Equipment wash areas	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No equipment wash areas.
S11	Fueling areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
S12	Hillside landscaping	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No hillside landscaping.
S13	Wash water control for food preparation areas	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No food preparation areas.
S14	Community car wash racks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No car wash racks.



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.*

Description of Proposed Project				
Project Types that Qualify for Water Quality Credits (Select all that apply):				
<input type="checkbox"/> Redevelopment projects that reduce the overall impervious footprint of the project site.	<input type="checkbox"/> 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.	<input type="checkbox"/> 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).		
<input type="checkbox"/> 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).	<input type="checkbox"/> 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		<input type="checkbox"/> 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).	
<input type="checkbox"/> Developments with dedication of undeveloped portions to parks, preservation areas and other pervious uses.	<input type="checkbox"/> Developments in a city center area.	<input type="checkbox"/> Developments in historic districts or historic preservation areas.	<input type="checkbox"/> 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.	<input type="checkbox"/> In-fill projects, the conversion of empty lots and other underused spaces into more beneficially used spaces, such as residential or commercial areas.
Calculation of Water Quality Credits (if applicable)	The entire DCV is being treated by LID BMPs. Water quality credits will not be used.			



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.*



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
Permeable Surface - Gravel	Fullerton Joint Union High School District	Inspection, weeding, replenishment	6 months
Bioretention/Biofiltration Planter	Fullerton Joint Union High School District	Inspection, landscape maintenance	Monthly

Please find an Operations and Maintenance Manual included as Attachment 4. A Master Covenant Agreement is included as Attachment 5. The owner is aware of the maintenance responsibilities of the proposed BMPs. A funding mechanism is in place to maintain the BMPs at the frequency stated in the WQMP.



BMP Inspection/Maintenance			
BMP	Reponsible Party(s)	Inspection/Maintenance Activities Required	Minimum Frequency of Activities



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

Attached please find the WQMP plot plan titled, "Low Impact Development Plan".

VI.2 ELECTRONIC DATA SUBMITTAL

The minimum requirement is to provide submittal of PDF exhibits in addition to hard copies. 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.



Section VII Educational Materials

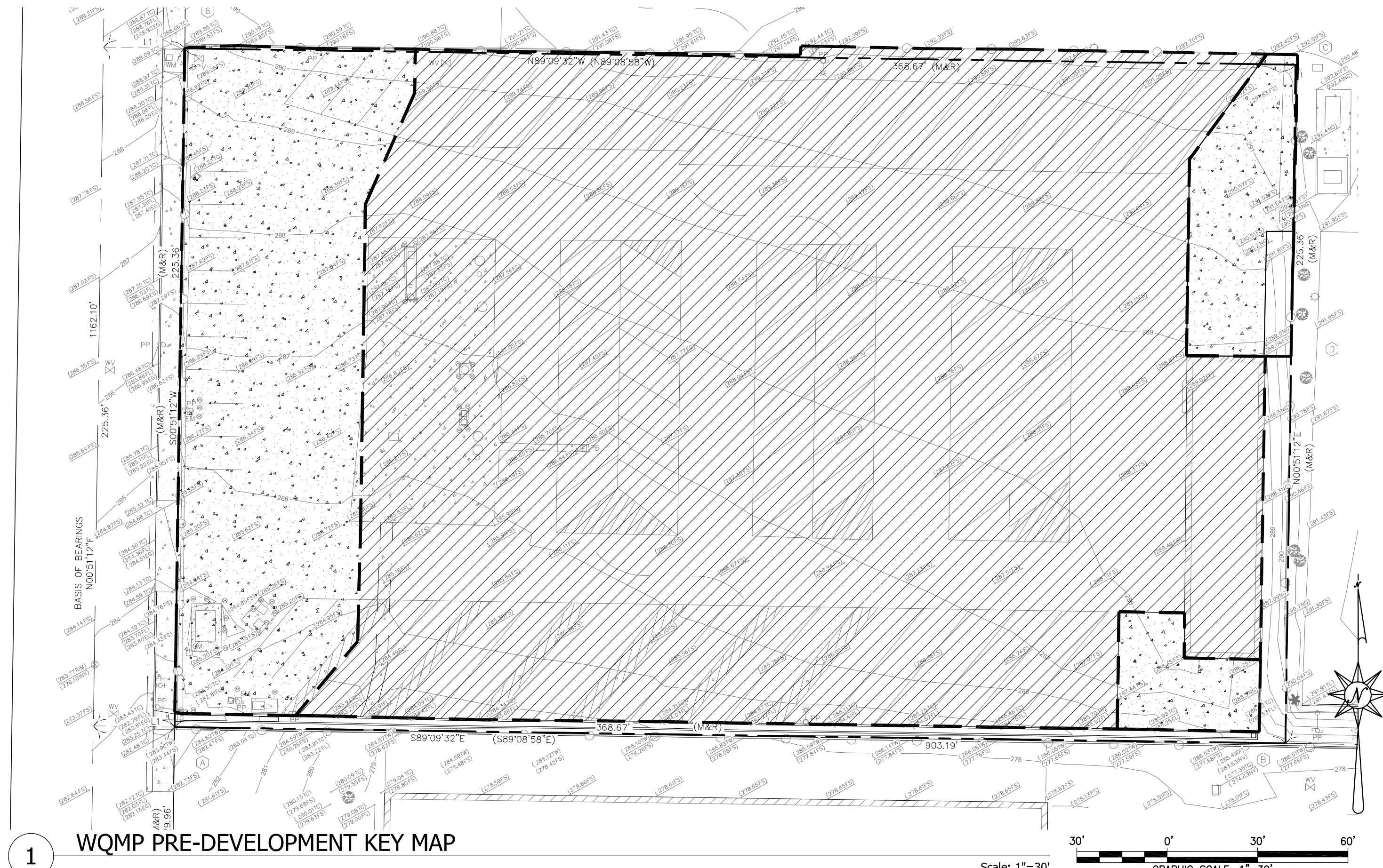
Refer to the Orange County Stormwater Program (ocwatersheds.com) for a library of materials available. For the copy submitted to the Permittee, only attach the educational materials specifically applicable to the project. Other materials specific to the project may be included as well and must be attached.

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	<input checked="" type="checkbox"/>	Tips for the Automotive Industry	<input type="checkbox"/>
Tips for Car Wash Fund-raisers	<input type="checkbox"/>	Tips for Using Concrete and Mortar	<input type="checkbox"/>
Tips for the Home Mechanic	<input type="checkbox"/>	Tips for the Food Service Industry	<input type="checkbox"/>
Homeowners Guide for Sustainable Water Use	<input type="checkbox"/>	Proper Maintenance Practices for Your Business	<input type="checkbox"/>
Household Tips	<input type="checkbox"/>	Other Material	Check If Attached
Proper Disposal of Household Hazardous Waste	<input checked="" type="checkbox"/>		
Recycle at Your Local Used Oil Collection Center (North County)	<input type="checkbox"/>		<input type="checkbox"/>
Recycle at Your Local Used Oil Collection Center (Central County)	<input type="checkbox"/>		<input type="checkbox"/>
Recycle at Your Local Used Oil Collection Center (South County)	<input type="checkbox"/>		<input type="checkbox"/>
Tips for Maintaining a Septic Tank System	<input type="checkbox"/>		<input type="checkbox"/>
Responsible Pest Control	<input type="checkbox"/>		<input type="checkbox"/>
Sewer Spill	<input type="checkbox"/>		<input type="checkbox"/>
Tips for the Home Improvement Projects	<input type="checkbox"/>		<input type="checkbox"/>
Tips for Horse Care	<input type="checkbox"/>		<input type="checkbox"/>
Tips for Landscaping and Gardening	<input type="checkbox"/>		<input type="checkbox"/>
Tips for Pet Care	<input type="checkbox"/>		<input type="checkbox"/>
Tips for Pool Maintenance	<input type="checkbox"/>		<input type="checkbox"/>
Tips for Residential Pool, Landscape and Hardscape Drains	<input checked="" type="checkbox"/>		<input type="checkbox"/>

LEGEND:

---	PROPERTY LINE
▭	(E) STRUCTURE
▭	(P) LIMITS OF DISTURBED AREA
▭	(P) PLANTER BOX (BIOFILTRATION)
▭	(E) CONCRETE SURFACE (UNDISTURBED IMPERVIOUS)
▭	(E) LANDSCAPE (UNDISTURBED PERVIOUS)
▭	(P) CONCRETE SURFACE (DISTURBED IMPERVIOUS)
▭	(P) PLANTER/LANDSCAPE AREA (DISTURBED PERVIOUS)
▭	(P) GRAVEL PAVING (DISTURBED PERVIOUS)

GENERAL NOTES:
 1. THIS PLAN IS ACCURATE FOR LOW IMPACT DEVELOPMENT (LID) PLAN ONLY.
 2. SURVEY PROVIDED BY ROSELL SURVEYING AND MAPPING, INC., DATED OCTOBER 8, 2015. PROPOSED SITE PLAN PROVIDED BY ROSELL SURVEYING AND MAPPING, INC., DATED OCTOBER 8, 2015. ELEVATIONS ARE APPROXIMATE PER THE REFERENCED PLANS. CONTRACTOR TO VERIFY EXACT LOCATION OF PROPERTY LINES.
 3. REFER TO EXISTING SITE PLAN PER SHEET C-2 AND PROPOSED GRADING & DRAINAGE PLAN PER SHEET C-3.



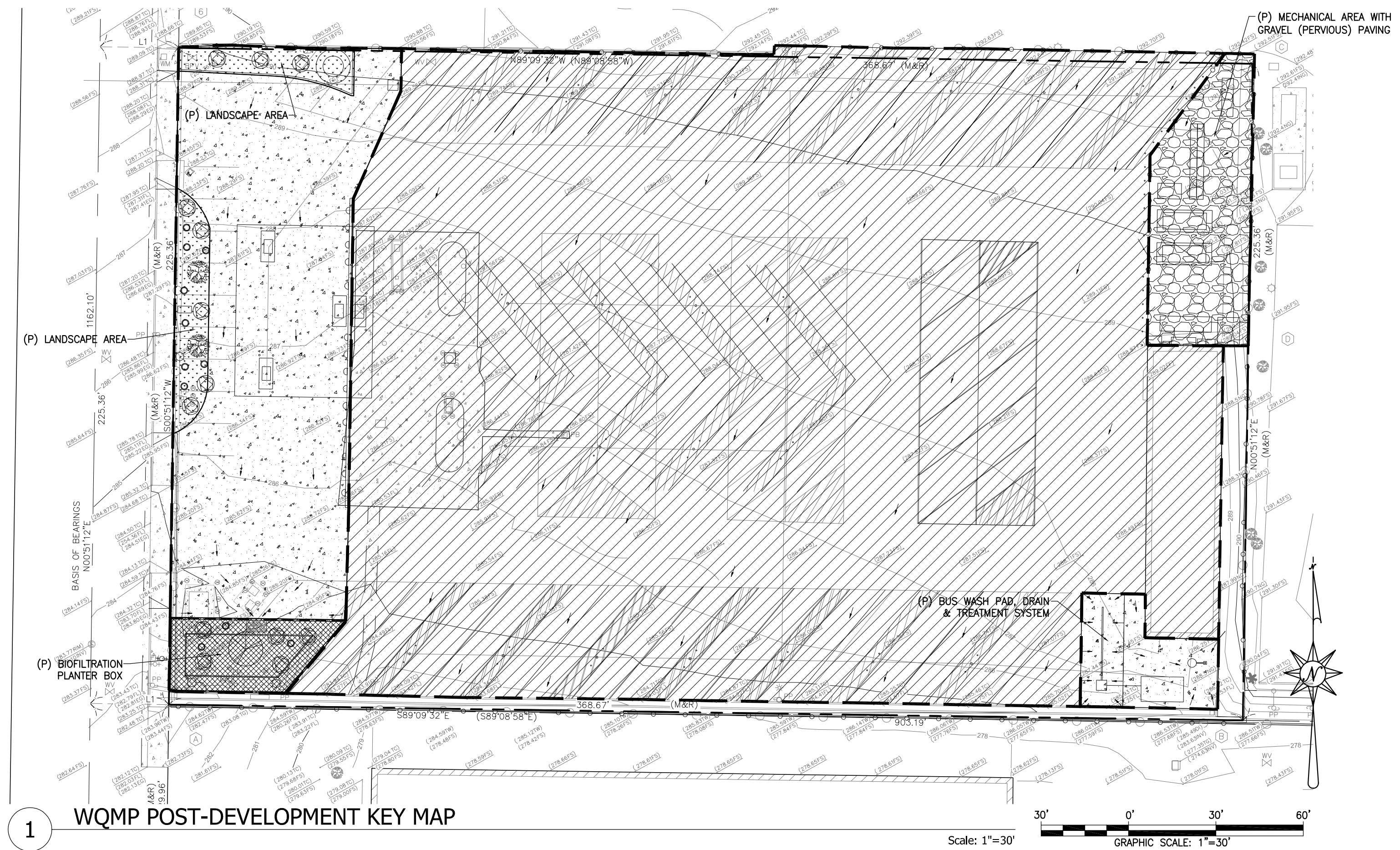
1 WQMP PRE-DEVELOPMENT KEY MAP

PRE-DEVELOPMENT

TOTAL DISTURBED AREA = 18,240 SF
PERVIOUS AREA = 368 SF
IMPERVIOUS AREA = 17,872 SF
PERVIOUS AREA = 2.0%
IMPERVIOUS AREA = 98.0%

PRE-DEVELOPMENT
IMPERVIOUS AREA CALCULATIONS
(DISTURBED AREA ONLY)

ITEM	AREA (SF)
CONCRETE	17,872
TOTAL	17,872



1 WQMP POST-DEVELOPMENT KEY MAP

POST-DEVELOPMENT

TOTAL DISTURBED AREA = 18,240 SF
PERVIOUS AREA = 5,874 SF
IMPERVIOUS AREA = 12,366 SF
PERVIOUS AREA = 32.2%
IMPERVIOUS AREA = 67.8%

POST-DEVELOPMENT
IMPERVIOUS AREA CALCULATIONS
(DISTURBED AREA ONLY)

ITEM	AREA (SF)
CONCRETE	10,908
BUS WASH	1,458
TOTAL	12,366

PRELIMINARY - NOT FOR CONSTRUCTION

All design, ideas, arrangements and plans indicated by these drawings and specifications are the property and copyright of the Engineer and shall neither be used on any other work nor be disclosed to any other person for any use whatsoever without written permission. Written dimensions shall take precedence over scaled dimensions and shall be verified at the job site. Any dimensional discrepancy shall be brought to the attention of the Engineer prior to the commencement of work.

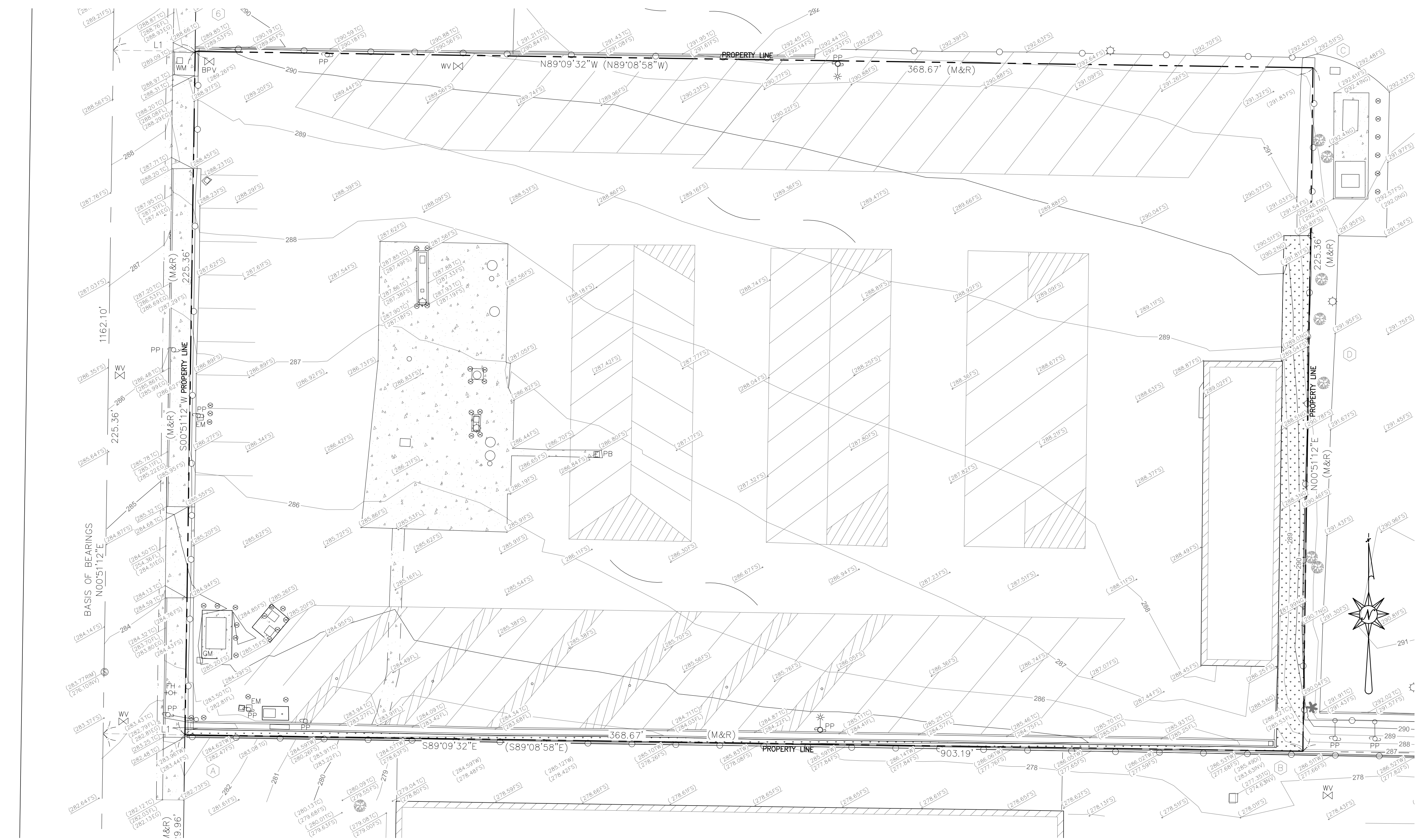
#	REVISIONS	DATE
1	REVISE WQMP	1/27/16
2	NEW SITE PLAN, REVISE WQMP	3/16/16

PLAN PREPARED BY:
 EPD consultants
 Sustainable Water Systems & Solutions
 20722 MAIN STREET
 CARSON, CA 90745
 Phone (310) 241-6565
 Fax (310) 241-6566



SHEET TITLE:	LOW IMPACT DEVELOPMENT (LID) PLAN		
PROJECT:	CNG FUELING FACILITY		
ADDRESS:	1050 LESLIE STREET LA HABRA, CA		
DATE	SCALE	DRAWN BY	CHECKED BY
11/05/15	AS_SHOWN	JA	KP

PROJECT NO. T355
 DRAWING NO. C-1
 SHEET 1 OF 4 SHEETS



1 EXISTING SURVEY PLAN

Scale: 1"=20'
GRAPHIC SCALE: 1"=20'

LEGEND:
 - - - - - PROPERTY LINE
 ▨ (E) STRUCTURE
 (E) LANDSCAPE AREA (PVIOUS)

NOTES:
 1. THIS PLAN IS ACCURATE FOR EXISTING SURVEY PLAN ONLY.
 2. SURVEY PROVIDED BY ROSELL SURVEYING AND MAPPING, INC., DATED OCTOBER 8, 2015.

PRE-DEVELOPMENT
 TOTAL SITE AREA = 83,084 SF
 TOTAL PVIOUS AREA = 1,989 SF
 TOTAL % PVIOUS AREA = 2.4%
 TOTAL IMPVIOUS AREA = 81,095 SF
 TOTAL % IMPVIOUS AREA = 96.4%

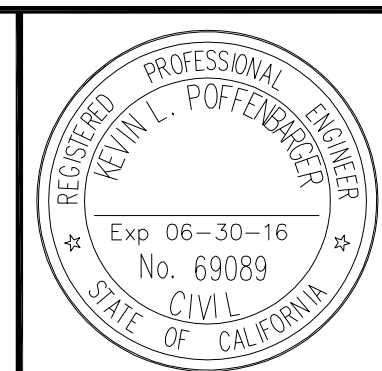
PRELIMINARY - NOT FOR CONSTRUCTION

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#	REVISIONS	DATE
1	REVISE WQMP	1/27/16
2	NEW SITE PLAN, REVISE WQMP	3/16/16

PLAN PREPARED BY:

 Sustainable Water Systems & Solutions
 20722 MAIN STREET
 CARSON, CA 90745
 Phone (310) 241-6565
 Fax (310) 241-6566



SHEET TITLE: EXISTING SURVEY PLAN			
PROJECT: CNG FUELING FACILITY			
ADDRESS: 1050 LESLIE STREET LA HABRA, CA 90631			
DATE	SCALE	DRAWN BY	CHECKED BY
11/05/15	AS_SHOWN	JA	KP

PROJECT NO. T355
 DRAWING NO. C-2
 SHEET 2 OF 4 SHEETS

- LEGEND:**
- PROPERTY LINE
 - (E) STRUCTURE
 - (P) LIMITS OF DISTURBED AREA
 - (P) CONTOUR
 - (P) STORMWATER FM PIPE
 - (P) DRAINAGE PIPE/SWALE
 - DIRECTION OF SURFACE FLOW
 - (P) AREA DRAIN
 - (P) DRAIN INLET

- (P) PLANTER BOX (BIOFILTRATION)
 - (P) CONCRETE SURFACE (DISTURBED IMPERVIOUS)
 - (P) PLANTER/LANDSCAPE AREA (DISTURBED PERVIOUS)
 - (P) GRAVEL PAVING (DISTURBED PERVIOUS)
- POST-DEVELOPMENT**
- TOTAL SITE AREA = 83,084 SF
 TOTAL DISTURBED AREA = 18,240 SF
 PERVIOUS AREA = 5,874 SF
 PERVIOUS AREA = 32.2%
 IMPERVIOUS AREA = 12,366 SF
 IMPERVIOUS AREA = 67.8%

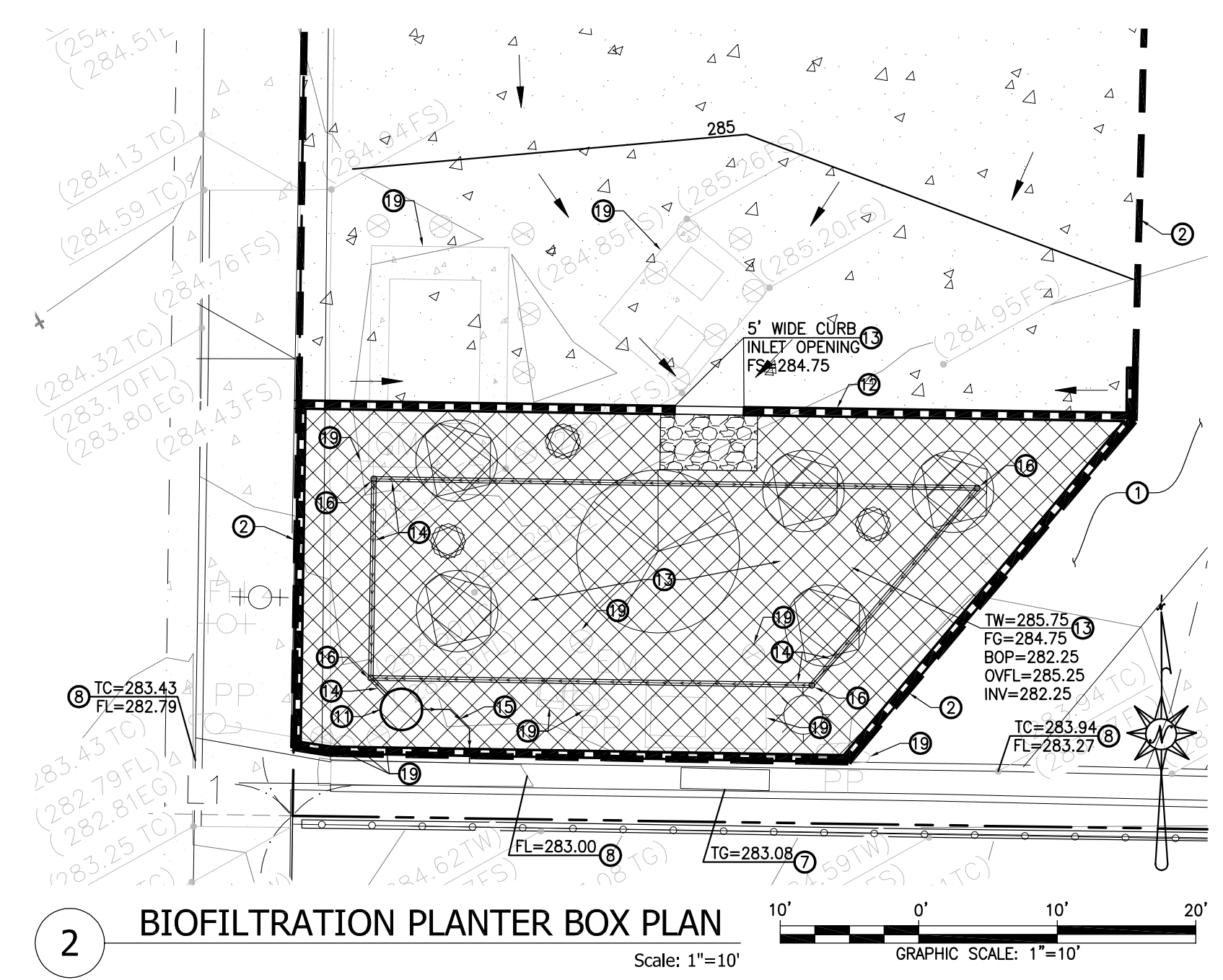
ABBREVIATIONS:

AC ASPHALT CONCRETE	DS ROOF DOWN SPOUT	MIN. MINIMUM	PVC POLYVINYL CHLORIDE PIPE
BMP BEST MANAGEMENT PRACTICE	EG EXISTING GROUND	MFR MANUFACTURER	R&R REMOVAL AND RECOMPACTION
BOC BACK OF CURB	ELEV ELEVATION	MH MANHOLE	SD STORM DRAIN
BOT BOTTOM OF TANK/PIT	(E) EXISTING	(N) NEW	SF SQUARE FEET
BS BOTTOM OF STAIRS	FF FINISHED FLOOR	N.T.S. NOT TO SCALE	SS SANITARY SEWER
BW BOTTOM OF WALL	FG FINISHED GRADE	OVFL OVERFLOW	TC TOP OF CURB
CL CENTERLINE	FS FINISHED SURFACE	(P) PROPOSED	TF TOP OF FENCE
CAB CRUSHED AGGREGATE BASE	FL FLOW LINE	PA PLANTING AREA	TG TOP OF GRATE
CMB CRUSHED MISC. BASE	FM FORCE MAIN	PL PROPERTY LINE	TT TOP OF TANK
CMU CONCRETE MASONRY UNIT	GAL GALLON	PCC PORTLAND CEMENT CONCRETE	TS TOP OF STAIRS
CB CATCH BASIN	GB GRADE BREAK	POC POINT OF CONNECTION	TW TOP OF WALL
CF CUBIC FEET	INV INVERT	POD POINT OF DISCHARGE	VIF VERIFY IN FIELD
CONC CONCRETE	LID LOW IMPACT DEVELOPMENT	PSP PER SEPARATE PERMIT	WS WATER SURFACE
Ø DIAMETER			

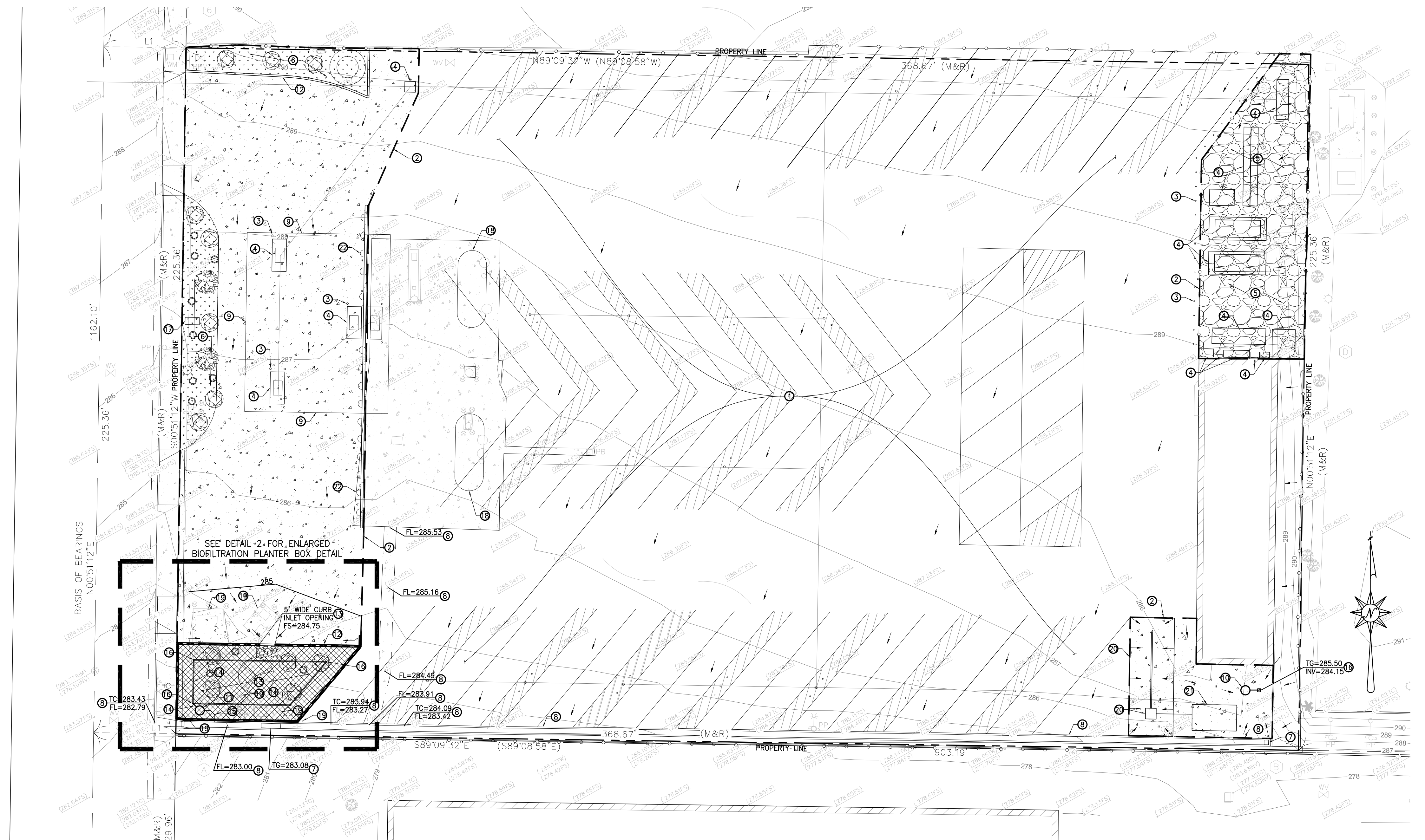
- GENERAL NOTES:**
- THIS PLAN IS ACCURATE FOR GRADING AND DRAINAGE PLAN ONLY.
 - SURVEY PROVIDED BY ROSELL SURVEYING AND MAPPING, INC., DATED OCTOBER 8, 2015. PROPOSED SITE PLAN PROVIDED BY ROSELL SURVEYING AND MAPPING, INC., DATED OCTOBER 8, 2015. ELEVATIONS ARE APPROXIMATE PER THE REFERENCED PLANS. CONTRACTOR TO VERIFY EXACT LOCATION OF PROPERTY LINES.
 - A REASONABLE EFFORT HAS BEEN MADE TO LOCATE AND DELINEATE ALL KNOWN UNDERGROUND UTILITIES. THE CONTRACTOR IS CAUTIONED THAT ONLY EXCAVATION WILL REVEAL THE TYPES, EXTENT, SIZES, LOCATIONS, AND DEPTHS OF SUCH UNDERGROUND UTILITIES. HOWEVER, THE OWNER AND ENGINEER ASSUME NO RESPONSIBILITY FOR THE COMPLETENESS OR ACCURACY OF THE DELINEATION OF SUCH UNDERGROUND UTILITIES, OR FOR THE EXISTENCE OF OTHER BURIED OBJECTS OR UTILITIES WHICH ARE NOT SHOWN ON THESE DRAWINGS.
 - CONTRACTOR SHALL FOLLOW ALL REQUIREMENTS OF PROJECT FINAL PLANS & SPECIFICATIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN THE FINAL PROJECT PLANS & SPECIFICATIONS FROM THE ENGINEER PRIOR TO PROCEEDING WITH WORK. THE PROJECT CIVIL ENGINEER SHALL BE NOTIFIED AND APPROVE ANY DESIGN CHANGES PRIOR TO IMPLEMENTATION DURING SITE DEVELOPMENT. ALL DIMENSIONS AND ELEVATIONS SHALL BE FIELD-VERIFIED BY CONTRACTOR. CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ENGINEER IN WRITING IN THE EVENT OBSERVED DIMENSIONS DIFFER FROM DIMENSIONS SHOWN ON THE GRADING AND DRAINAGE PLANS.
 - ALL EXISTING AND PROPOSED UTILITIES, ESPECIALLY THOSE WITH ACCESS PORTS TO GRADE WITHIN AREAS TO BE DISTURBED SHALL REMAIN PROTECTED IN PLACE BY CONTRACTOR.
 - REFER TO ALL NOTES PER THESE PLANS.

- KEYNOTES:**
- UNDISTURBED AREA.
 - LIMITS OF DISTURBED AREA.
 - (P) BOLLARDS (BY OTHERS).
 - (P) MECHANICAL EQUIPMENT (BY OTHERS).
 - (P) GRAVEL PAVING (PERVIOUS).
 - (P) LANDSCAPE AREA (BY OTHERS).
 - (E) DRAINAGE INLET TO REMAIN.
 - (E) DRAINAGE SWALE TO REMAIN.
 - (P) CANOPY 40'x50' (BY OTHERS).
 - (P) 36" TOPP INDUSTRIES PUMP BASIN (TRAFFIC RATED) WITH DUPLEX STORMWATER PUMPS CONTROLLED BY PUMP BASIN CONTROL PANEL. SEE DETAIL 4 ON SHEET C-4.
 - (P) 36" TOPP INDUSTRIES PUMP BASIN (FOOT-TRAFFIC RATED) WITH DUPLEX STORMWATER PUMPS CONTROLLED BY PUMP BASIN CONTROL PANEL. SEE DETAIL 4 ON SHEET C-4.
 - (P) CURB/LANDSCAPE WALL.
 - (P) BIOFILTRATION PLANTER BOX (1,285 SF) PER DETAIL 3 ON SHEET C-4.
 - (P) 4" DRAINAGE PIPE. ALL DRAINAGE PIPES SCH 40 PVC, S=1% MIN. UNLESS OTHERWISE NOTED.
 - (P) 1-1/2" SCH 80 PVC PRESSURE FORCE MAIN FROM PUMP BASIN TO OUTLET PER PLAN.
 - (P) 12"x12" CATCH BASIN WITH TRAFFIC GRATE PER DETAIL 2 ON SHEET C-4.
 - (P) MONUMENT SIGN (BY OTHERS).
 - (E) CNG EQUIPMENT TO REMAIN.
 - (E) EQUIPMENT OR UTILITY TO BE ABANDONED/RELOCATED.
 - (P) BUS WASH PAD WITH DRAIN (BY OTHERS).
 - (P) BUS WASH WATER TREATMENT SYSTEM (BY OTHERS).
 - (P) CREEPING FIG IN CUT AWAY PLANTERS ALONG WALL (BY OTHERS).

PROPRIETARY MANUFACTURER NOTES:
 1. ALL PROPRIETARY SPECIFICATIONS ARE "OR EQUAL" SUBJECT TO WRITTEN APPROVAL OF SUBMITTAL BY ENGINEER.



2 BIOFILTRATION PLANTER BOX PLAN
 Scale: 1"=10'
 GRAPHIC SCALE: 1"=10'



1 GRADING & DRAINAGE PLAN
 Scale: 1"=20'
 GRAPHIC SCALE: 1"=20'

PRELIMINARY - NOT FOR CONSTRUCTION

All design, ideas, arrangements and plans indicated by these drawings and specifications are the property and copyright of the Engineer and shall neither be used on any other work nor be disclosed to any other person for any use whatsoever without written permission. Written dimensions shall take precedence over scaled dimensions and shall be verified at the job site. Any dimensional discrepancy shall be brought to the attention of the Engineer prior to the commencement of work.

#	REVISIONS	DATE
1	REVISE WQMP	1/27/16
2	NEW SITE PLAN, REVISE WQMP	3/16/16

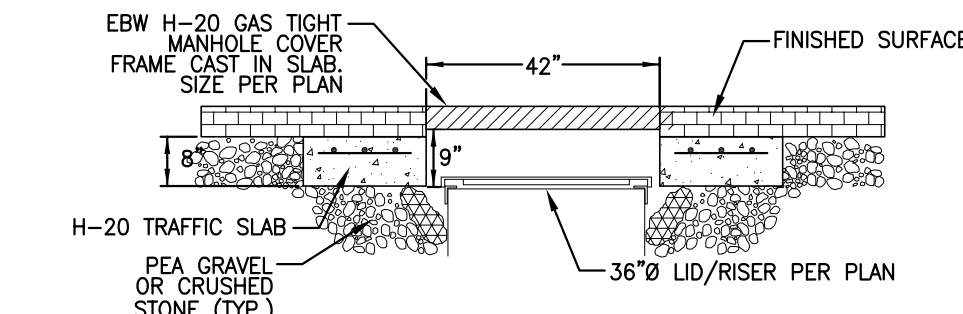
PLAN PREPARED BY:

20722 MAIN STREET
 CARSON, CA 90745
 Phone (310) 241-6565
 Fax (310) 241-6566

SHEET TITLE: GRADING & DRAINAGE PLAN			
PROJECT: CNG FUELING FACILITY			
ADDRESS: 1050 LESLIE STREET LA HABRA, CA			
DATE	SCALE	DRAWN BY	CHECKED BY
11/05/15	AS_SHOWN	JA	KP

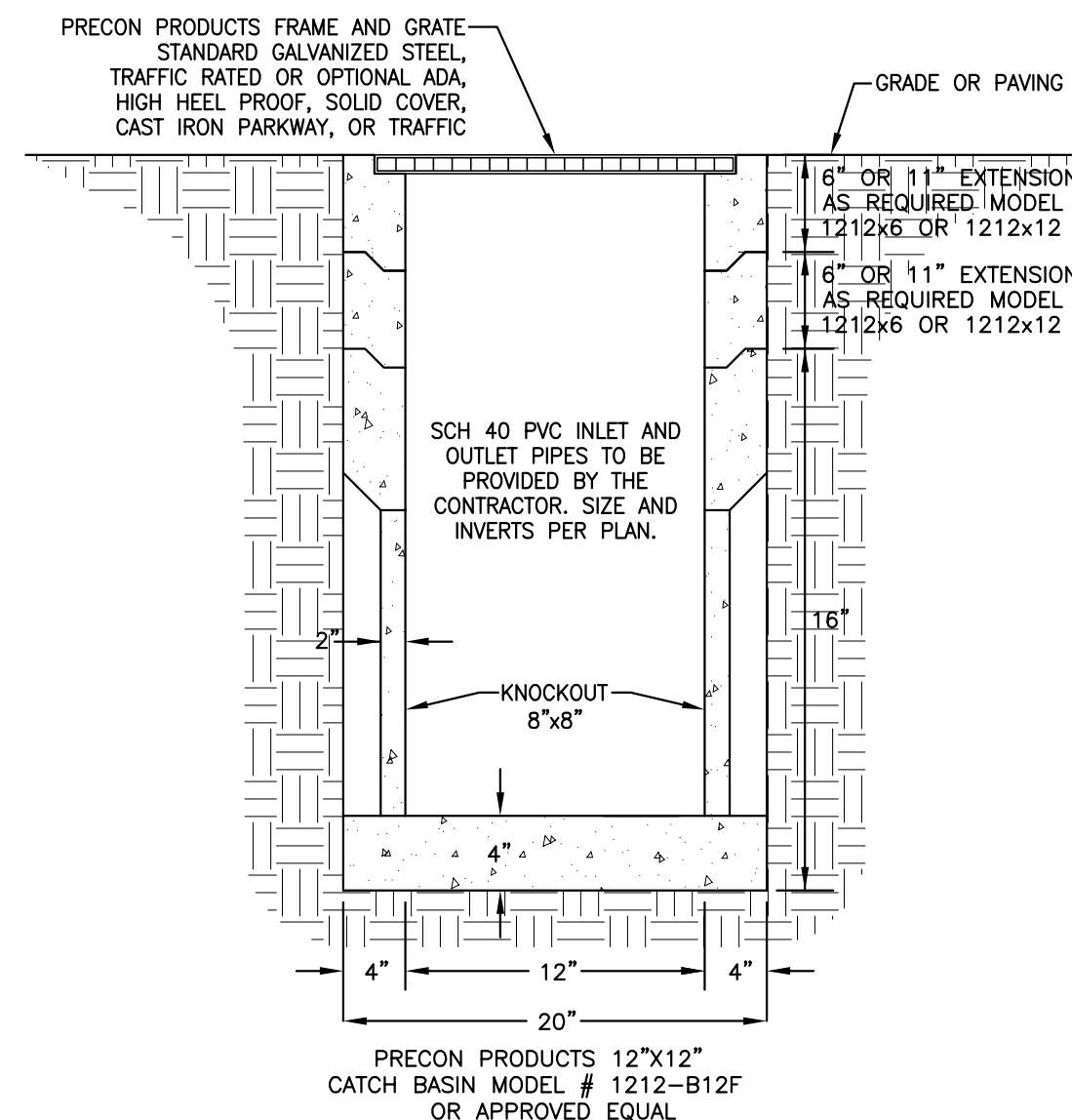
PROJECT NO. **T355**
 DRAWING NO. **C-3**
 SHEET **3** OF 4 SHEETS

- GROUT SEAL (NON STRUCTURAL)
- PEA GRAVEL OR CRUSHED STONE PER SPECIFICATION
- EBW GAS TIGHT, H-20 FRAME AND COVER, 42"Ø=781-443-12
- SURFACE OR PAVING
- 8" THICK CONCRETE APRON REINFORCED WITH #4 @ 12" O.C. E.W. @ 1/3 DEPTH OF SLAB THICKNESS FROM TOP, MINIMUM OF 2500 PSI CLASS A CONCRETE



1 H-20 TRAFFIC RATED INSTALLATION DETAIL

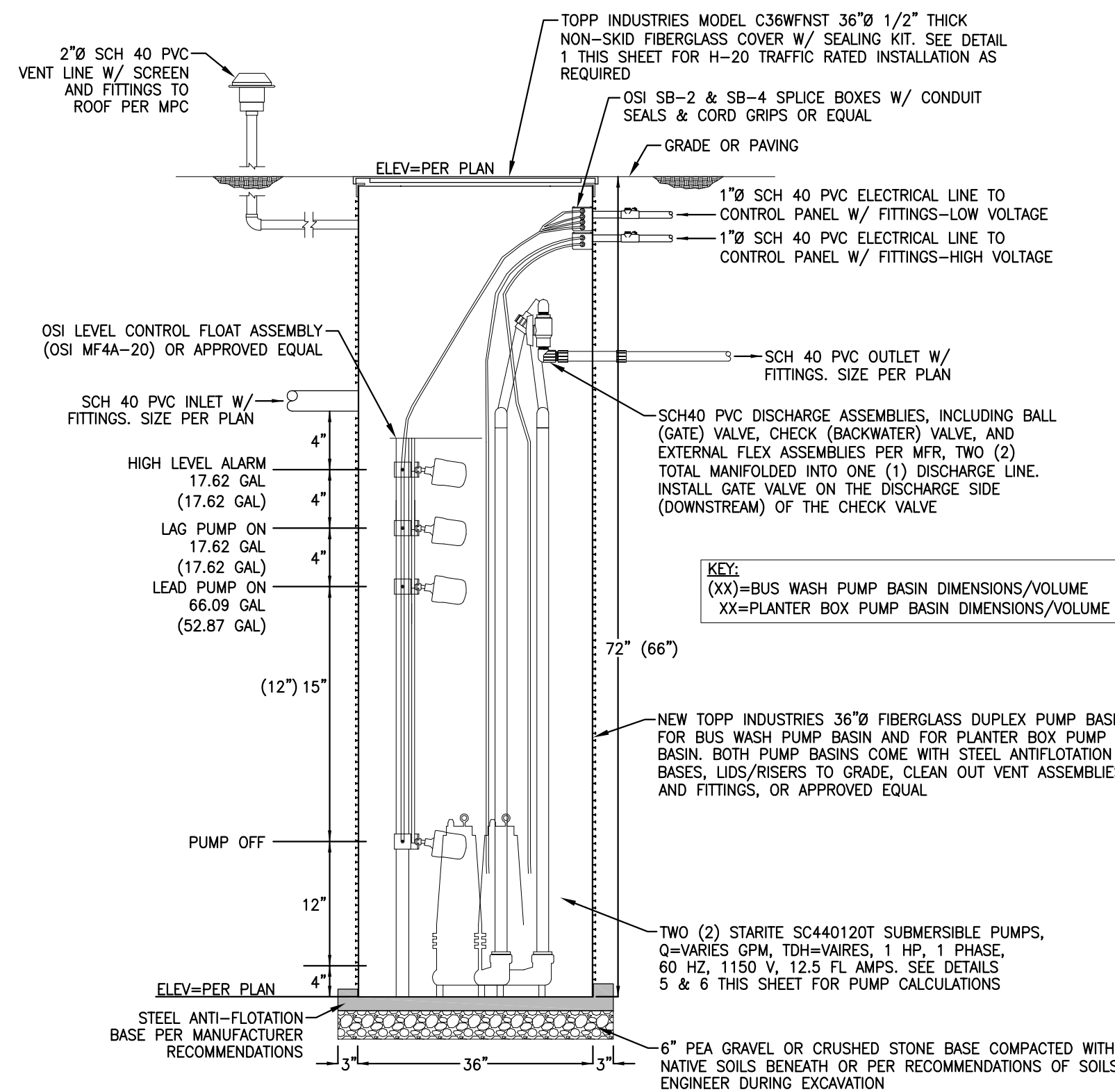
Scale: N.T.S.



- NOTE:**
- REFER TO PRECON PRODUCTS SPECIFICATIONS FOR FURTHER DETAILS. FOR CATCH BASIN MANUFACTURER CALL (805) 527-0841 OR WWW.PRECONPRODUCTS.COM.

2 CATCH BASIN TYPICAL DETAIL

Scale: N.T.S.



- NOTES:**
- CONTRACTOR TO FOLLOW ALL MANUFACTURER'S RECOMMENDED INSTALLATION INSTRUCTIONS.
 - ALL PENETRATIONS THROUGH PUMP BASIN SHALL BE WATER TIGHT. INSTALLER SHALL USE EPOXY OR OTHER APPROVED METHOD.
 - ACCESS PUMP BASIN SHALL BE WATER TESTED AFTER INSTALLATION IN ACCORDANCE WITH CONSTRUCTION SPECIFICATIONS.
 - IF GROUNDWATER IS ENCOUNTERED GEOTECHNICAL ENGINEER SHOULD BE CONSULTED FOR SUBSURFACE AND Dewatering RECOMMENDATIONS.
 - EACH CONDUIT RUN TO CONTROL PANEL SHALL BE INSTALLED WITH TWO (2) CONDUIT SEALS (0-2/GEDNEY CAT NO EYA-125) ONE (1) EACH AT CONTROL PANEL AND SPLICE BOX (TYP.).
 - PUMP BASIN SHALL BE WATER AND GAS-TIGHT VENTED TO THE ROOF IN ACCORDANCE WITH THE CALIFORNIA PLUMBING CODE (CPC).
 - CONTRACTOR TO VERIFY EXACT LOCATION & ELEVATION OF DRAINAGE LINE. GRAVITY STORM DRAIN LINE SHALL SLOPE A MINIMUM OF 2% TOWARDS PUMP BASIN.
 - CONTRACTOR SHALL INSTALL VALVES AND ELECTRICAL AT CONTROL PANEL AND SPLICE BOX (TYP.). CONTRACTOR SHALL PROVIDE SUBMITTALS FOR ENGINEER APPROVAL PRIOR TO PROCEEDING WITH WORK.
 - AN 24" VALVE BOX IS STRONGLY RECOMMENDED (NOT SHOWN). CONTRACTOR MAY ELIMINATE THE VALVE BOX AS LONG AS THE PIPING, ELECTRICAL COMPONENTS, AND ALL CONNECTIONS LOCATED INSIDE CAN BE INSTALLED WITHIN THE PUMP BASIN WITH ENGINEER'S APPROVAL.
 - THESE MATERIALS SPECIFICATIONS ARE INTENDED TO ASSIST THE CONTRACTOR IN THE SELECTION OF MATERIALS NECESSARY AND APPROPRIATE TO COMPLETE THE INSTALLATION OF ASTORM DRAIN PUMPING SYSTEM AT THE SUBJECT PROPERTY. ADDITIONAL COMPONENTS WILL BE NECESSARY, THAT INCLUDE BUT ARE NOT LIMITED TO PIPING, ELECTRICAL CONDUIT, FITTINGS AND BACKFILL MATERIALS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ACCURATELY ESTIMATE THE TYPE AND QUANTITY OF MATERIALS THAT WILL BE NECESSARY TO COMPLETE THE INSTALLATION PER THE SYSTEM DESIGNER'S, MANUFACTURER'S, AND PERTINENT REGULATORY AGENCIES SATISFACTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SUBMIT SHOP DRAWINGS AND A LIST OF ALL MATERIALS TO THE SYSTEM DESIGNER FOR APPROVAL PRIOR TO PURCHASE.

4 STORMWATER PUMP BASIN TYPICAL DETAIL

Scale: N.T.S.

- PROPRIETARY MANUFACTURER NOTES:**
- ALL PROPRIETARY SPECIFICATIONS ARE "OR EQUAL" SUBJECT TO WRITTEN APPROVAL OF SUBMITTAL BY ENGINEER.

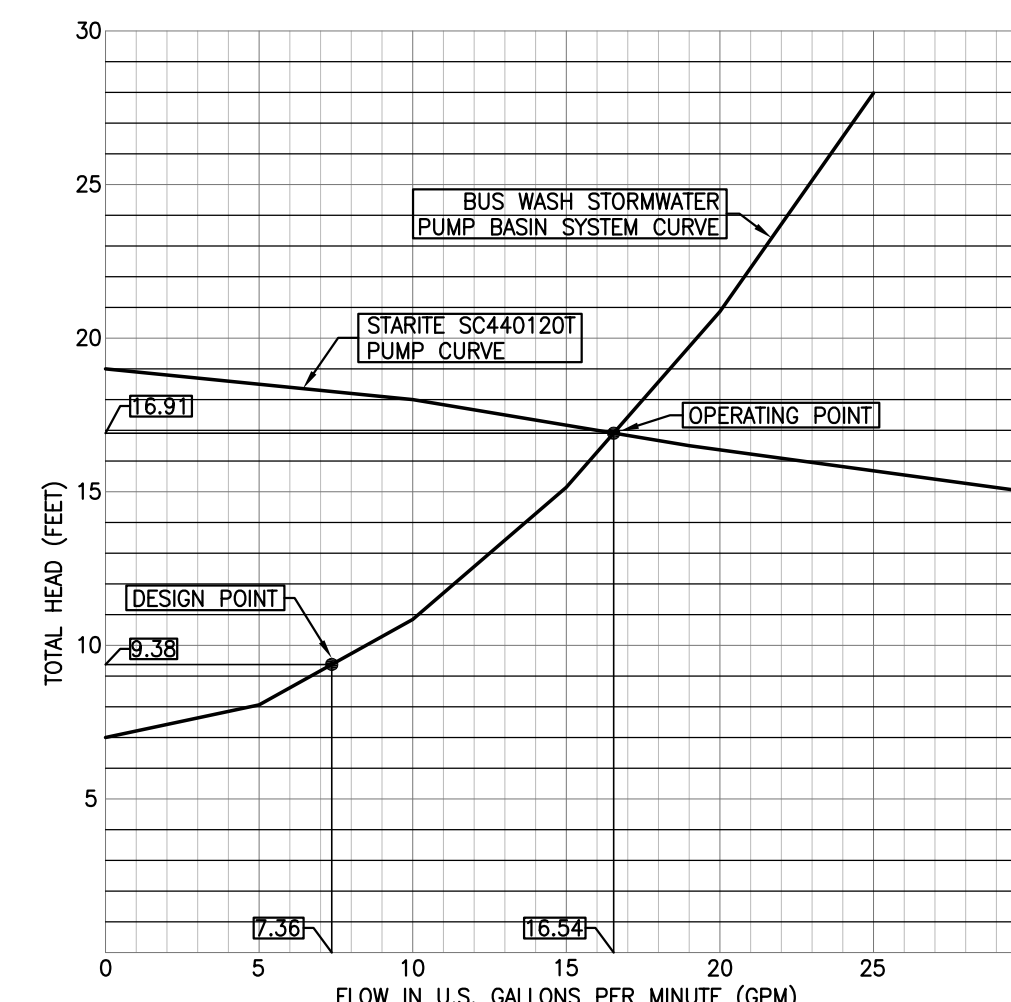
BUS WASH STORMWATER PUMP BASIN DESIGN FLOW CALCULATIONS:
 DESIGN RAINFALL DEPTH (85TH PERCENTILE) = 0.9 INCH
 CONTRIBUTING DRAINAGE AREA = 0.034 ACRES
 CLEAR PEAK FLOW RATE (HYDROCALC) = 0.0164 CFS
 (SEE DETAIL 6 THIS SHEET FOR HYDROCALC RESULTS)
 DESIGN RUNOFF = 0.0164 CFS X 448.83 = 7.36 GAL/MIN
 (448.83 - CONVERSION FACTOR FROM CFS TO GAL/MIN)
 MINIMUM VOLUME REQUIRED = 14.72 GALLONS

PUMP BASIN PUMP SPECIFICATIONS:

MAKE: STARTE
 MODEL NO: SC440120T
 RATING: 16.91 GPM 16.91 TDH
 MOTOR: 4/10HP
 ELEC: 1 PH 60 HZ 115 V
 ELEC: 12.5 FL AMPS

PUMP BASIN SYSTEM CALCULATIONS:

Flow Rate (GPM)	Total Head (Feet)
0	16.91
10	17.36
20	18.31
30	20.31
40	23.31
50	27.31

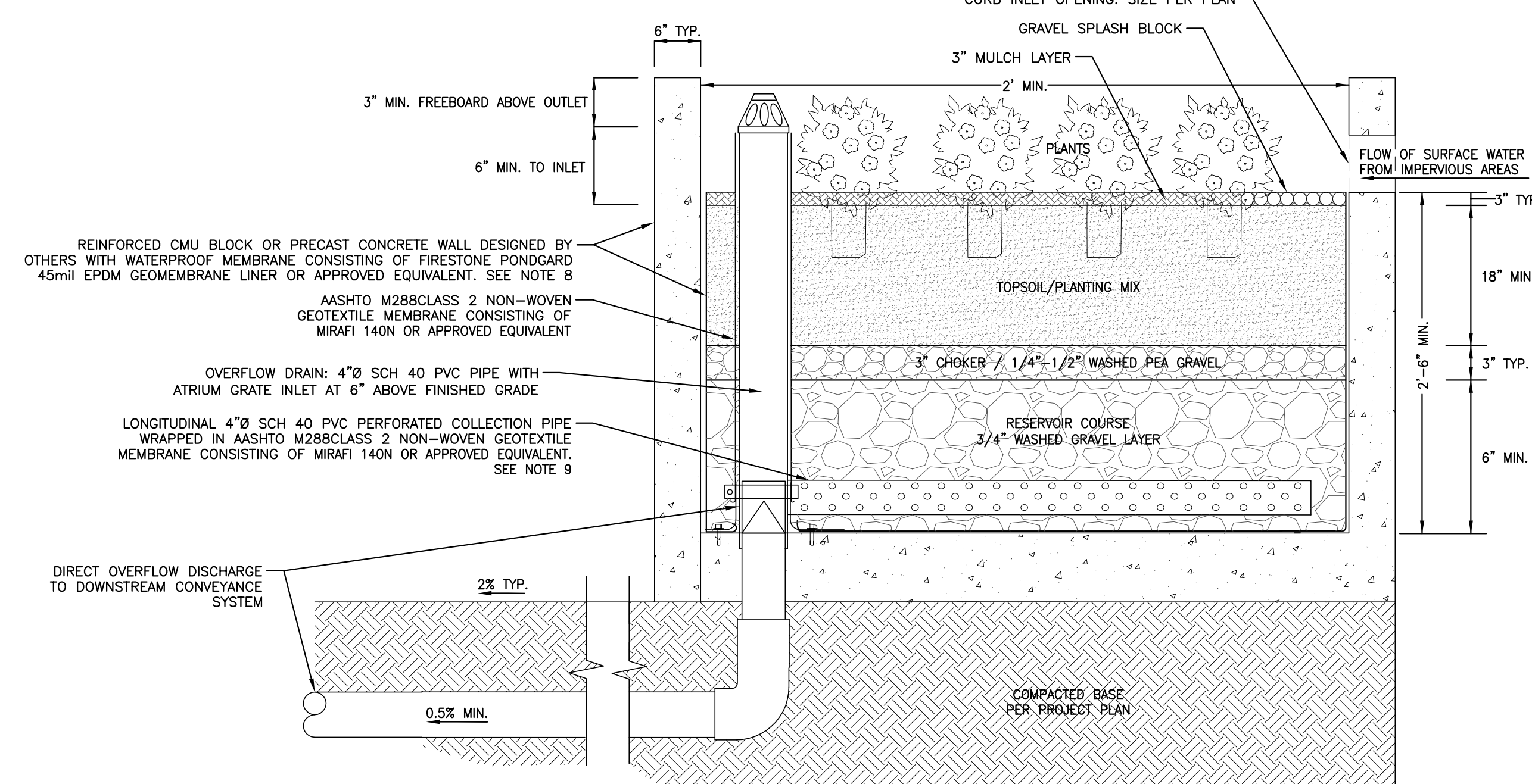


5 BUS WASH STORMWATER PUMP BASIN CURVES AND SPECIFICATIONS

Scale: N.T.S.

3 STORMWATER PLANTER BOX TYPICAL DETAIL

Scale: N.T.S.



- NOTES:**
- AT LEAST 9 INCHES OF STORAGE SHALL BE PROVIDED BETWEEN THE PLANTING SURFACE AND THE CREST OF EACH PLANTER.
 - PLANTERS SHALL NOT BE LOCATED ON UNEVEN OR SLOPED SURFACES.
 - TOP SOIL/PLANTING MIX IS AT LEAST 18 INCHES DEEP.
 - TOP SOIL CONTAINS NO MORE THAN 30% COMPOST.
 - MINIMUM GRAVEL LAYER SHALL BE 6 INCHES DEEP.
 - DIRECT OVERFLOW DISCHARGE TO DOWNSTREAM CONVEYANCE SYSTEM.
 - OPERATION AND MAINTENANCE: (A) PLANTERS SHALL UNDERGO ANNUAL PLANT AND SOIL MAINTENANCE TYPICAL OF LANDSCAPE CARE PROCEDURES TO ENSURE OPTIMUM FILTRATION, STORAGE, AND DRAINAGE CAPABILITIES; (B) FOLLOWING RAIN EVENTS PLANTERS WILL BE INSPECTED TO ENSURE THAT STANDING WATER IS NOT PRESENT IN THE PLANTER FOR MORE THAN 96 HOURS. PONDED WATER THAT IS NOT COMPLETELY DRAINED AFTER 96 HOURS CAN CAUSE VECTOR BREEDING. IF VECTOR BREEDING OCCURS AS A RESULT OF CONTAINED STORM WATER OR INADEQUATELY MAINTAINED BMP'S, THE HOMEOWNER UNDERSTANDS THAT THE GREATER LOS ANGELES COUNTY VECTOR CONTROL DISTRICT HAS THE ABILITY TO FINE SITE OWNERS FOR VIOLATING THE CALIFORNIA HEALTH AND SAFETY CODES SECTION 20960-20972; (C) PESTICIDE ADDITIVES WILL NOT BE USED IN THE PLANTERS.
 - ALL PIPE PROTRUSIONS THROUGH LINER(S) SHALL BE FASTENED WITH BULKHEAD FITTINGS. LINER(S) SHALL BE SEALED AND WATER TIGHT TO ISOLATE EXCAVATIONS. LINER(S) SHALL BE TESTED PRIOR TO BACKFILL.
 - PIPE SPECIFICATIONS: DRAIN PIPE SHALL BE A MINIMUM OF 4"Ø SCH 40 PVC PIPE OR GREATER SHALL BE USED, OR AS APPROVED BY ENGINEER. TWO (2) ROWS OF PERFORATIONS 3/8"Ø SHALL BE 120-DEGREES APART AND HOLES SHALL BE SPACED LONGITUDINALLY AT 4" ON CENTER OR AS RECOMMENDED BY THE SOILS ENGINEER AND APPROVED BY THE ENGINEER. PERFORATIONS SHALL BE PLACED FACING DOWN TO PREVENT CLOGGING AND TO MAXIMIZE WATER COLLECTION.
 - SEE PLANTER BOX FACT SHEET FOR MORE INFORMATION.

PLANTER BOX STORMWATER PUMP BASIN DESIGN FLOW CALCULATIONS:
 DESIGN RAINFALL DEPTH (85TH PERCENTILE) = 0.9 INCH
 CONTRIBUTING DRAINAGE AREA = 0.284 ACRES
 CLEAR PEAK FLOW RATE (HYDROCALC) = 0.0691 CFS
 (SEE DETAIL 10 THIS SHEET FOR HYDROCALC RESULTS)
 DESIGN RUNOFF = 0.0691 CFS X 448.83 = 31.01 GAL/MIN
 (448.83 - CONVERSION FACTOR FROM CFS TO GAL/MIN)
 MINIMUM VOLUME REQUIRED = 62.02 GALLONS

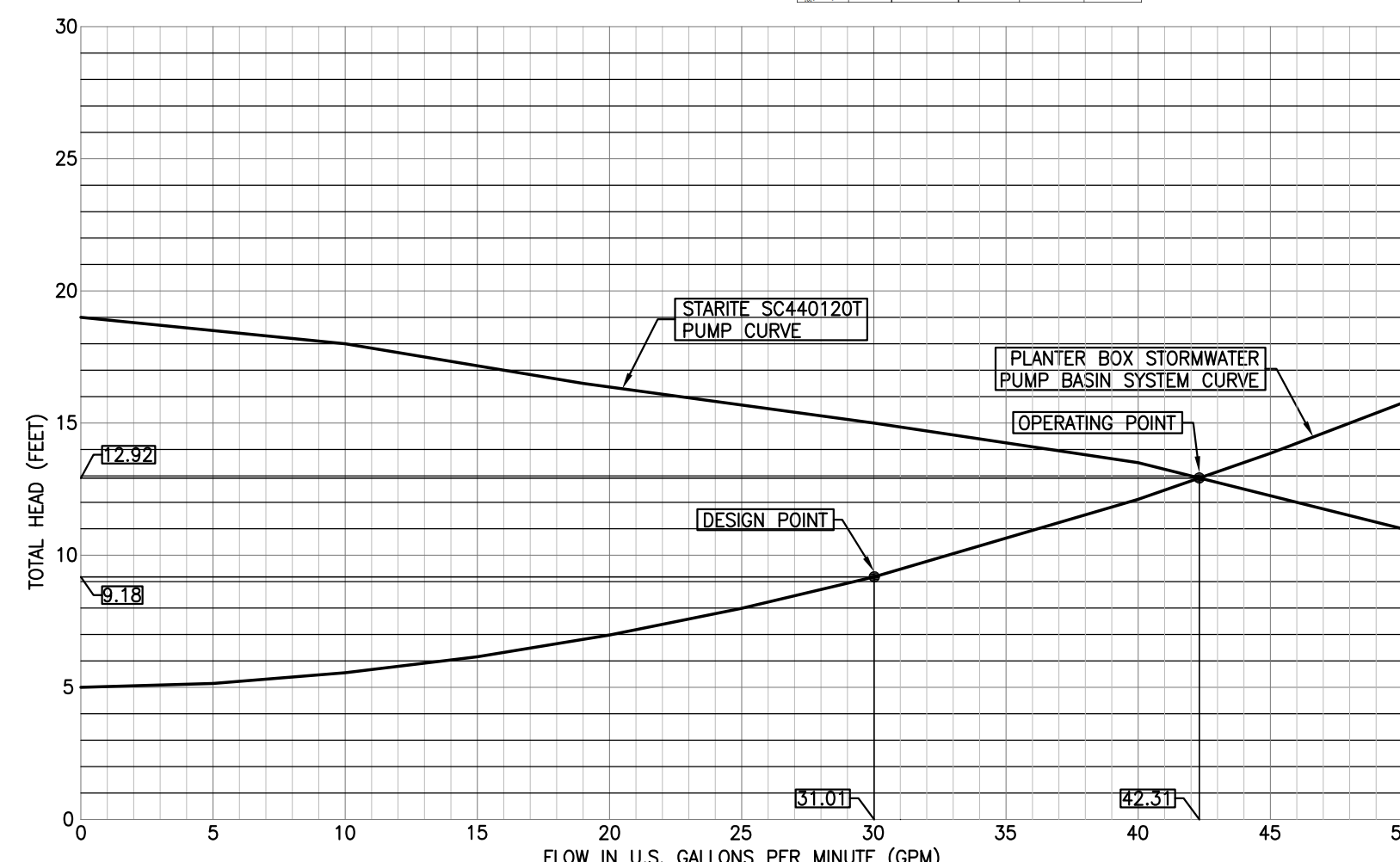
PUMP BASIN PUMP SPECIFICATIONS:

MAKE: STARTE
 MODEL NO: SC440120T
 RATING: 42.31 GPM 12.92 TDH
 MOTOR: 4/10HP
 ELEC: 1 PH 60 HZ 115 V
 ELEC: 12.5 FL AMPS

PUMP BASIN SYSTEM CALCULATIONS:

Flow Rate (GPM)	Total Head (Feet)
0	12.92
10	13.37
20	14.32
30	16.32
40	19.32
50	23.32

NOTE: PUMP SIZING HAS BEEN PERFORMED IN ACCORDANCE WITH THE LOS ANGELES COUNTY PUMP SIZING GUIDELINES. THE CALCULATIONS PROVIDED ARE FOR ONE PUMP WITH SECOND PUMP ONLY TURNING ON WHEN THE LAG FLOAT IS REACHED.



6 PLANTER BOX STORMWATER PUMP BASIN CURVES AND SPECIFICATIONS

Scale: N.T.S.

PRELIMINARY - NOT FOR CONSTRUCTION

All design, ideas, arrangements and plans indicated by these drawings and specifications are the property and copyright of the Engineer and shall neither be used on any other work nor be disclosed to any other person for any use whatsoever without written permission. Written dimensions shall take precedence over scaled dimensions and shall be verified at the job site. Any dimensional discrepancy shall be brought to the attention of the Engineer prior to the commencement of work.

#	REVISIONS	DATE	PLAN PREPARED BY:
1	REVISE WQMP	1/27/16	
2	NEW SITE PLAN, REVISE WQMP	3/16/16	

EPD consultants
 Sustainable Water Systems & Solutions
 20722 MAIN STREET
 CARSON, CA 90745
 Phone (310) 241-6565
 Fax (310) 241-6566

PROFESSIONAL ENGINEER
 KEVIN L. PORTER
 No. 69089
 CIVIL
 STATE OF CALIFORNIA
 Exp 06-30-16

SHEET TITLE: GRADING & DRAINAGE DETAILS

PROJECT: CNG FUELING FACILITY

ADDRESS: 1050 LESLIE STREET
LA HABRA, CA

DATE	SCALE	DRAWN BY	CHECKED BY
11/05/15	AS_SHOWN	JA	KP

PROJECT NO. T355

DRAWING NO. C-4

SHEET 5 OF 5 SHEETS