Recording Requested by
and when Recorded, return to:

CITY OF MILPITAS
455 E. CALAVERAS BOULEVARD
MILPITAS, CA 95035-5479

Attn: City Clerk

(SPACE ABOVE THIS LINE RESERVED FOR RECORDER'S USE)

Document Transfer Tax is $ 0
( ) Computed on full value of property conveyed
( ) Computed on full value less value of liens and encumbrances remaining
City transfer tax is $ 0
APN: 86-32-092

STORMWATER MANAGEMENT FACILITIES OPERATION AND MAINTENANCE AGREEMENT

This Stormwater Management Facilities Operation and Maintenance Agreement ("AGREEMENT") is made and entered into this _____ day of _____ 2021 ("Effective Date"), by and between **LAGO VISTA MILPITAS, LLC, a California Limited Liability Company** ("Property Owner") and the City of Milpitas, a municipal corporation of the State of California ("City").

RECITALS

This AGREEMENT is made and entered into with reference to the following facts:

A. **WHEREAS**, the Property Owner is the owner of real property more particularly depicted and described on the attached as **Exhibit A** ("Property") and fully incorporated herein by reference; and

B. **WHEREAS**, the Property Owner received entitlements from the City allowing the development of the Property, including the construction of a Mixed-Use Development comprising of 381 Apartment units and 8,100 square feet of commercial and office space with, emergency vehicle access, utilities, and associated offsite and onsite improvements landscaping, irrigation, and stormwater treatment measures on a 5.60 acre site located at 765 Montague Expressway in Milpitas and more commonly known as The Edge, Project No. PJ 2909, (the "Project") on the Property; and subject to conditions set forth in the following (collectively "City Approvals"):

1. Resolution No. 8382 approving Site Development Permit No. SD13- 0012 ,

2. Resolution No. 8382 approving Major Vesting Tentative Map No. MT13- 0006 ,

3. Resolution No. 8382 approving Conditional Use Permit No. UP13- 0011

C. **WHEREAS**, discharges to the City's municipal separate storm sewer system ("MS4") are regulated under state and federal law pursuant to Waste Discharge Requirements and National Pollutant Discharge Elimination System permit ("MS4 Permit") issued by the Regional Water Quality Control Board, San Francisco Region ("Regional Board").

D. **WHEREAS**, pursuant to the requirements of the MS4 Permit and the City's Stormwater and Urban Runoff Pollution Control Ordinance as codified in Milpitas Municipal Code Chapter 16 ("Ordinance"), the City Approvals require the Property Owner to install, operate and maintain, at no cost or expense to the City, the Permanent Stormwater Pollution Prevention Measures ("BMPs") more particularly described in the City-approved Stormwater Control Operation and Maintenance Plan (sometimes referred to herein as "Plan") for the Project attached hereto as **Exhibit B** and fully incorporated herein by reference; and

E. **WHEREAS**, the Stormwater Control Operation and Maintenance Plan may be subsequently modified from time to time with City's written approval and such changes shall be fully incorporated as part of this Agreement by this reference; and

F. **WHEREAS**, the Stormwater Control Operation and Maintenance Plan includes provisions for the BMP Operation and Maintenance and an annual inspection checklist for the BMPs constructed on the Property, and

G. **WHEREAS**, this Agreement memorializes the Property Owner's maintenance, operations, and inspection obligations under the City's Ordinance and the approved Stormwater Control Operation and Maintenance Plan.

NOW, THEREFORE, in consideration of the foregoing premises, the mutual covenants contained herein, and the following terms and conditions, the parties hereto agree as follows:

SECTION 1. Responsibility for Operation and Maintenance:

The Property Owner, at its sole cost and expense, shall construct and install the BMPs shown in Exhibit B in accordance with the plans approved by and on file with the City. Property Owner shall diligently maintain in perpetuity the BMPs in a manner assuring peak performance at all times, shall make such changes or modifications to the BMPs, subject to City's prior approval as may be reasonably necessary for the BMPs to continue to operate as designed and approved and to accomplish its intended purpose and in good repair, and in compliance with all applicable Federal, State, County and local laws and regulations, including but not limited to the Ordinance, as the same may be amended, revised, and/or replaced from time to time. The Owner shall be responsible for the costs incurred in operating, maintaining, repairing and replacing the BMPs. Property Owner shall not destroy or remove the BMPs or modify any measure in any manner that would lessen its effectiveness. Property Owner shall make available copies of the approved Stormwater Control Operation and Maintenance Plan at the site with the facility or property manager.

SECTION 2: Inspection by Property Owner:

The Property Owner, at its sole cost and expense, shall conduct annual inspections of all permanent installed BMPs per the Plan. The annual inspection report shall include completion of the checklist described in the approved Stormwater Control Operation and Maintenance Plan. The BMPs must be inspected by a qualified independent inspector who is acceptable to the City. The Property Owner shall submit the Inspection Report on these BMPs to the City Engineer no later than July 15th of each year.

SECTION 3. Facility Inspection by the City:

(a) Right of Entry. The Property Owner, on its behalf and on behalf of its successors and assigns, grants permission to the City, the inspectors of the Regional Board, and local mosquito and vector control agency, and their authorized agents and employees, to enter the Property, and to inspect the BMPs whenever the City deems necessary to enforce provisions of the Ordinance, this Agreement, or any other local or state requirements. The City may enter the premises at any reasonable time during normal business hours and upon at least 48 hours prior written notice (except that prior written notice is not required in case of emergency) to inspect the premises related to BMPs and BMP operation and maintenance, to inspect and copy records related to storm water compliance, and to collect samples and take measurements related to BMPs. The Property Owner shall deposit and maintain a Private Job Account with the City a minimum balance of **Four Thousand Dollars ($4,000)** for inspection by City Staff pursuant to this Section 3. The deposit of **Four Thousand Dollars ($4,000.00)** shall be made simultaneously with the execution of this Agreement.

(b) Security. The City may require the Owner, its successors and assigns, from time to time, to post security in a form, amount, and for a time period satisfactory to City to guarantee performance of the obligations stated herein. Should the Owner, its successors and assigns, fail to perform the obligations under this Agreement, the City may, in the case of a cash bond, act for the Owner, its successors and assigns, using the proceeds from such cash bond, or in the case of a surety bond, require the surety to perform the obligations of this Agreement.

SECTION 4. Failure to Perform Required Facility Repairs or Maintenance by the Property Owner:

(a) Enforcement Action. If the Property Owner or its successors fail to operate and maintain the BMPs in good working order and in accordance with the approved Plan and the City's Ordinance, the City may, but is not required to, pursue any enforcement action available at law or in equity to cause the completion of all maintenance and may charge the costs of such enforcement action against the Property Owner in any manner authorized by law or in equity.

(b) City Maintenance. In the event of Property Owner's failure to operate and maintain BMPs in accordance with the Plan and the City's Ordinance, the City may also, with prior written notice, enter the Property to return the BMPs to good working order; provided however that the Property Owner shall have 30 days after any such notice, or such other time provided by law, to cure the relevant failure and provided further that the Property Owner shall have such additional time after the initial 30 days to complete a cure so long as Property Owner commences the cure within the initial 30 days and diligently prosecutes the cure to completion. Notwithstanding the foregoing, City may in its sole discretion enter the Property to return the BMPs to good working in an emergency and take any other necessary action to mitigate an emergency without any notice to Property Owner. The City is under no obligation to maintain or repair the BMPs, and this Agreement may not be construed to impose any such obligation on the City. If the City, under this Section 4 takes any action to return the BMPs to good working order, the Property Owner

shall reimburse the City for all the reasonable costs and expenses incurred by the City. The City will provide the Property Owner with an itemized invoice of the City's costs and expenses and the Property Owner shall make full payments to the City within thirty (30) days of the date of the invoice. If the Property Owners fails to pay the invoice within thirty (30) days, the City shall be entitled to cause a lien for any such unpaid maintenance expense bill to be recorded against the Property. In addition, the City shall be entitled to have the unpaid amount of the invoice placed as a special assessment on the next regular tax bill levied against the Property, after which such assessment shall be collected in the same manner as ordinary municipal taxes are collected, and shall be subject to the same penalties and same procedures under foreclosure and sale in the case of delinquency as provided for ordinary municipal taxes. The actions described in this section are in addition to and not in lieu of other legal remedies provided by law. Notwithstanding the above, it is understood that City is under no obligation to repair or maintain the BMPs, and in no event shall this Agreement be construed to impose any such obligation on City.

(c) Specific Performance. The provisions of this Agreement are expressly declared to be for the benefit of the City. The City may bring an action to obtain specific performance of this Agreement and may recover its costs, including attorney fees, incurred in bringing such action.

SECTION 5: Successors and Assigns:

Property Owner hereby declares that the Property shall be held, transferred, encumbered, used, conveyed, leased and occupied subject to the covenants, conditions, restrictions, easements and rights set forth herein for the use and benefit of each of the Lots. All of the limitations, easements, uses, obligations, covenants, restrictions and conditions stated herein shall run with the Property and shall be binding upon Property Owner, its successors and assigns, any and all parties having or acquiring any right, title or interest in or to the Property or any part thereof or interest therein and shall inure to the benefit of and be binding upon each successor-in-interest thereto.

Upon transfer of the property, the Property Owner shall provide the new owner with the current Plan and a copy of this Agreement and shall, in any event, be released from all obligations under this Agreement as of the effective date of the transfer of the Property.

SECTION 6. Indemnity:

The Property Owner, on Property Owner's behalf and on behalf of all successors in interest pursuant to Section 5 of this Agreement, shall indemnify, release, hold harmless, and defend the City and its authorized agents and employees from and against any and all demands, suits, liabilities, fines, losses, damages, accidents, casualties, occurrences or claims, including reasonable attorneys' fees, against the City which may in anyway arise or relate to the construction, operation, presence, existence or maintenance of the BMPs, or from any personal injury or property damage that may arise or relate from the City entering the property under Section 4. If a claim is asserted against the City, its authorized agents or employees, the City shall promptly notify the Property Owner and the Property Owner shall defend the claim and any resulting litigation at its sole cost and expense, with counsel approved by City. If any judgment is entered against the City, or its authorized agents or employees, the Property Owner must pay all costs and expenses to satisfy the judgment.

SECTION 7. Severability:

Invalidation of any one of the provisions of this Agreement shall in no way effect any other provisions, and all other provisions shall remain in full force and effect.

SECTION 8. Non-Discrimination:

The Property Owner shall not discriminate, in any way, against any person on the basis of race, sex, color, age, religion, sexual orientation, actual or perceived gender identity, disability, ethnicity, or national origin, in connection with or related to the performance of this Agreement.

SECTION 9. Governing Law:

City and Property Owner agree that the law governing this Agreement shall be that of the State of California and that Property Owner shall comply with all applicable laws, ordinances, codes and regulations of the federal, state and local governments.

SECTION 10. Recordation:

Property Owner shall, within 10 days after the effective date of this Agreement, record or cause the Agreement to be recorded in the Office of the Recorder, Santa Clara County, California, at the expense of the Property Owner, which recording shall constitute notice of the obligations herein set forth and a covenant running with the land and shall be binding upon all of the successors and assigns in title to the Property. In the event Property Owner fails to timely record this Agreement, City shall be authorized but not required to record the Agreement.

SECTION 11. Books and Records:

A. The Property Owner shall maintain any and all ledgers, books of account, invoices, vouchers, cancelled checks, and other records or documents evidencing or relating to charges for services, or expenditures and disbursements or in anyway relating to the performance of this Agreement for a minimum period of three (3) years, or for any longer period required by law.

B. Any records or documents required to be maintained pursuant to this Agreement shall be made available for inspection or audit at no cost to City, at reasonable any time during regular business hours, upon at least 48 hours' prior written request by the City Attorney, City Manager, or a designated representative of any of these officers. Copies of such documents shall be provided to City for inspection at City Hall when it is practical to do so. Otherwise, unless an alternative is mutually agreed upon, the records shall be available at the Property Owner's address indicated for receipt of notices in this Agreement.

SECTION 12. Notices:

All notices and other communications required or permitted to be given under this Agreement shall be in writing and shall be personally served or mailed, postage prepaid and return receipt requested, addressed to the respective parties as follows:

To CITY:

City of Milpitas
Attn: City Engineer
455 East Calaveras Blvd.
Milpitas, CA 95035

To PROPERTY OWNER:

Lago Vista Milpitas, LLC
Attn: Stephen E. Schott, Vice President
404 Saratoga Avenue, Suite 100
Santa Clara, CA 95050

Notice shall be deemed effective on the date personally delivered or, if mailed, three (3) days after deposit in the mail.

SECTION 13. Venue:

In the event that suit shall be brought by either party to this contract, the parties agree that venue shall be exclusively vested in the state courts of the County of Santa Clara, or if federal jurisdiction is appropriate, exclusively in the United States District Court, Northern District of California, San Jose, California.

SECTION 14. Interpretation, Prior Agreements:

This Agreement, including all Exhibits attached hereto, represents the entire understanding of the parties as to those matters contained herein. In the event that the terms specified in any of the Exhibits attached hereto conflict with any of the terms specified in the body of this Agreement, the terms specified in the body of this Agreement shall control. No prior oral or written understanding shall be of any force or effect with respect to those matters covered hereunder. This Agreement may be modified only by a written amendment duly executed by the parties to this Agreement.

[Signatures on Next Page]

IN WITNESS WHEREOF, the Parties execute this Stormwater Management Facilities Operation and Maintenance Agreement as of the last date set forth below:

PROPERTY OWNER:

LAGO VISTA MILPITAS, LLC
a California Limited Liability Company

By:

By: _____
Name: Daniel M Ikeda
Title: Member / CFO

By: _____
Name: Stephen E. Schott
Title: Member / Vice President

CITY:

CITY OF MILPITAS,
A MUNICIPAL CORPORATION

By: _____
Steven McHarris, City Manager

Approved as to form:

By: _____
Christopher J. Diaz, City Attorney

Approved:

By: _____
Lauren Lai, CPA, MPA
Finance Director/Risk Manager

Recommended for approval:

By: _____
Steve Erickson, City Engineer

Please note that this is a placeholder for the acknowledgement. So use the most current version of the acknowledgement

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
County of _____)

On _____, before me, _____, a Notary Public, personally appeared

_____,
_____ personally known to me;
_____ or _____, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____

CAPACITY CLAIMED BY SIGNER:

Though statute does not require the notary to fill in the data below, doing so may prove invaluable to persons relying on the document.

_____ Individual(s)
_____ Corporate Officer(s) Titles _____ and _____
_____ Partner(s) _____ Limited _____ General
_____ Attorney-in-Fact
_____ Trustee(s)
_____ Guardian/Conservator
_____ Other : _____

Signer is representing: _____

ATTENTION NOTARY: Although the information requested below is optional, it could prevent fraudulent attachment of this certificate to unauthorized document.

Title or type of document _____
Number of pages: _____ Date of document: _____
Signer(s) other than named above: _____

THIS CERTIFICATE MUST BE ATTACHED TO THE DOCUMENT DESCRIBED ABOVE

see attached

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT CIVIL CODE § 1189

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California
County of Santa Clara }

On January 26, 2021 before me, Kirsten Storga, Notary Public,
Date *Here Insert Name and Title of the Officer*

personally appeared Daniel M. Ikeda
Name(s) of Signer(s)

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/~~are~~ subscribed to the within instrument and acknowledged to me that he/~~she~~/~~they~~ executed the same in his/~~her~~/~~their~~ authorized capacity(~~ies~~), and that by his/~~her~~/~~their~~ signature(~~s~~) on the instrument the person(~~s~~), or the entity upon behalf of which the person(~~s~~) acted, executed the instrument.

KIRSTEN STORGA
Notary Public - California
Santa Clara County
Commission # 2269819
My Comm. Expires Dec 6, 2022

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____
Signature of Notary Public

Place Notary Seal and/or Stamp Above

OPTIONAL

Completing this information can deter alteration of the document or fraudulent reattachment of this form to an unintended document.

Description of Attached Document

Title or Type of Document: _____

Document Date: _____ Number of Pages: _____

Signer(s) Other Than Named Above: _____

Capacity(ies) Claimed by Signer(s)

Signer's Name: _____	Signer's Name: _____
☐ Corporate Officer – Title(s): _____	☐ Corporate Officer – Title(s): _____
☐ Partner – ☐ Limited ☐ General	☐ Partner – ☐ Limited ☐ General
☐ Individual ☐ Attorney in Fact	☐ Individual ☐ Attorney in Fact
☐ Trustee ☐ Guardian of Conservator	☐ Trustee ☐ Guardian of Conservator
☐ Other: _____	☐ Other: _____
Signer is Representing: _____	Signer is Representing: _____

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT **CIVIL CODE § 1189**

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State of California
County of Santa Clara }

On January 26, 2021 *Date* before me, Kirsten Storga, Notary Public *Here Insert Name and Title of the Officer*,

personally appeared Stephen E. Schott *Name(s) of Signer(s)*,

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/~~are~~ subscribed to the within instrument and acknowledged to me that he/~~she/they~~ executed the same in his/~~her/their~~ authorized capacity(~~ies~~), and that by his/~~her/their~~ signature(~~s~~) on the instrument the person(~~s~~), or the entity upon behalf of which the person(~~s~~) acted, executed the instrument.

KIRSTEN STORGA
Notary Public - California
Santa Clara County
Commission # 2269819
My Comm. Expires Dec 6, 2022

Place Notary Seal and/or Stamp Above

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____
Signature of Notary Public

OPTIONAL

Completing this information can deter alteration of the document or fraudulent reattachment of this form to an unintended document.

Description of Attached Document

Title or Type of Document: _____

Document Date: _____ Number of Pages: _____

Signer(s) Other Than Named Above: _____

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Signer's Name: _____	Signer's Name: _____
☐ Corporate Officer – Title(s): _____	☐ Corporate Officer – Title(s): _____
☐ Partner – ☐ Limited ☐ General	☐ Partner – ☐ Limited ☐ General
☐ Individual ☐ Attorney in Fact	☐ Individual ☐ Attorney in Fact
☐ Trustee ☐ Guardian of Conservator	☐ Trustee ☐ Guardian of Conservator
☐ Other: _____	☐ Other: _____
Signer is Representing: _____	Signer is Representing: _____

EXHIBIT A

Plat and Description for the site

Legal Description of Property

Real property in the City of Milpitas, County of Santa Clara, State of California, described as follows:

LOT 1, AS SHOWN ON THE MAP ENTITLED "TRACT 10305, THE EDGE" FILED FOR RECORD ON OCTOBER 27, 2016 IN BOOK 898 OF MAPS, AT PAGES 28-30, SANTA CLARA COUNTY RECORDS.

EXCEPTING FROM A PORTION OF LOT 1, ALL MINERALS AND ALL MINERAL RIGHTS OF EVERY KIND AND CHARACTER NOW KNOWN TO EXIST OR HEREAFTER DISCOVERED UNDERLYING THE PROPERTY, INCLUDING, WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, OIL AND GAS AND RIGHTS THERETO, TOGETHER WITH THE SOLE, EXCLUSIVE AND PERPETUAL RIGHT TO EXPLORE FOR, REMOVE AND DISPOSE OF SAID MINERALS BY ANY MEANS OR METHODS SUITABLE TO GRANTOR, ITS SUCCESSORS AND ASSIGNS, BUT WITHOUT ENTERING UPON OR USING THE SURFACE OF THE PROPERTY, AND IN SUCH MANNER AS NOT TO DAMAGE THE SURFACE OF THE PROPERTY, OR TO INTERFERE WITH THE USE THEREOF BY GRANTEE, ITS SUCCESSORS OR ASSIGNS, AS RESERVED BY UNION PACIFIC RAILROAD COMPANY, A DELAWARE CORPORATION IN THAT CERTAIN QUITCLAIM DEED RECORDED APRIL 3, 2014 IN DOCUMENT NO. 22559547 AS OFFICIAL RECORDS.

APN: 086-32-092 (Lot 1)

Plat Map

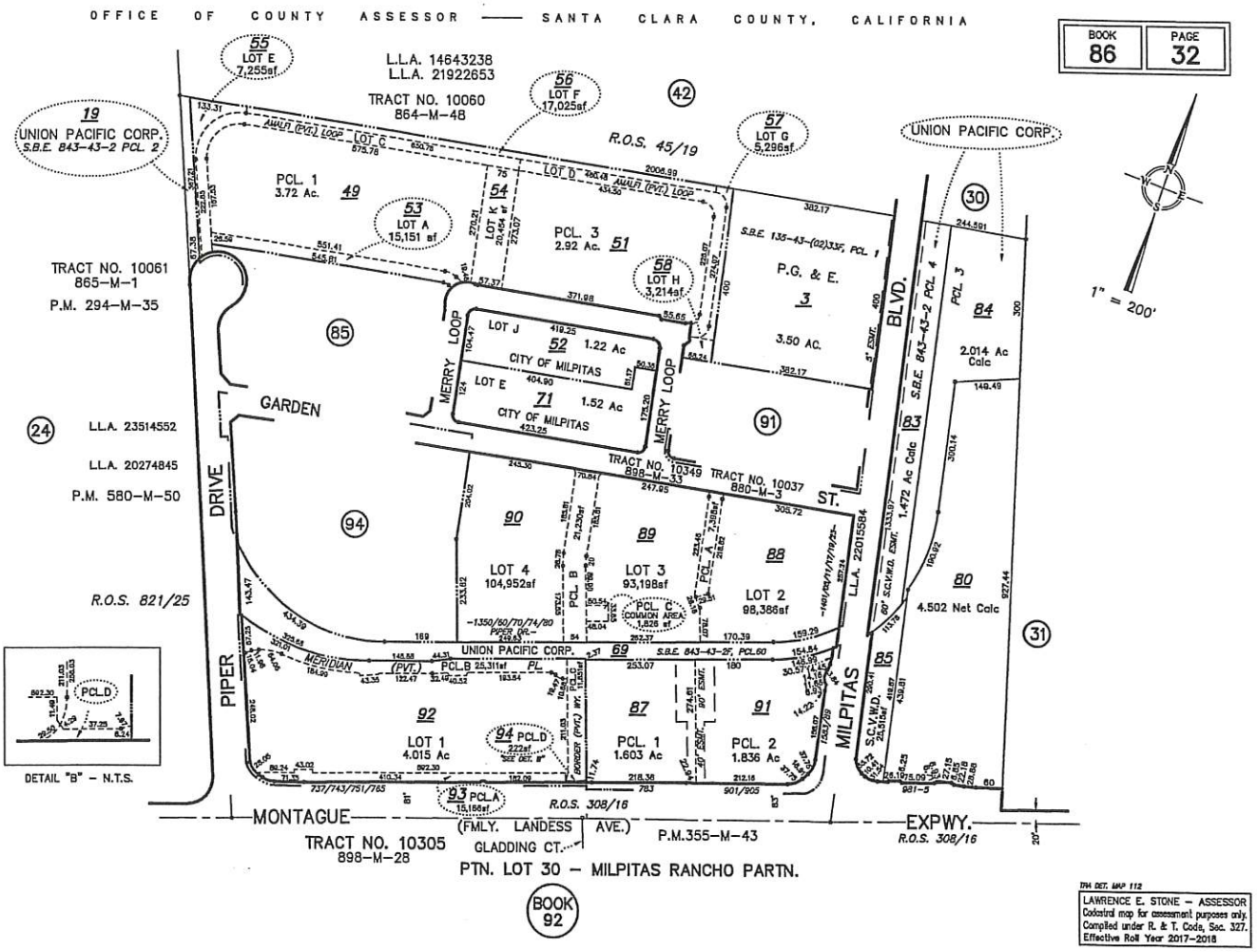
OFFICE OF COUNTY ASSESSOR — SANTA CLARA COUNTY, CALIFORNIA
BOOK 86
PAGE 32
L.L.A. 14643238
L.L.A. 21922653
TRACT NO. 10060
864–M–48
R.O.S. 45/19
UNION PACIFIC CORP.
S.B.E. 843–43–2 PCL. 2
PCL. 1
3.72 Ac.
PCL. 3
2.92 Ac.
LOT A
15,151 sf
LOT E
7,255sf
LOT F
17,025sf
LOT G
5,296sf
LOT H
3,214sf
LOT J
1.22 Ac
CITY OF MILPITAS
LOT E
1.52 Ac
CITY OF MILPITAS
P.G. & E.
3.50 Ac.
S.B.E. 135–43–(02)337, PCL. 1
TRACT NO. 10061
865–M–1
P.M. 294–M–35
L.L.A. 23514552
L.L.A. 20274845
P.M. 580–M–50
R.O.S. 821/25
GARDEN
DRIVE
MERRY LOOP
TRACT NO. 10349
898–M–33
TRACT NO. 10037
880–M–3
ST.
BLVD.
PIPER
MILPITAS
MONTAGUE
EXPWY.
(FMLY. LANDESS AVE.)
GLADDING CT.
P.M.355–M–43
R.O.S. 308/16
TRACT NO. 10305
898–M–28
PTN. LOT 30 – MILPITAS RANCHO PARTN.
BOOK 92
LOT 1
4.015 Ac
LOT 2
98,386sf
LOT 3
93,198sf
LOT 4
104,952sf
PCL. 1
1.603 Ac
PCL. 2
1.836 Ac
PCL. C
COMMON AREA
1,826 sf
2.014 Ac Calc
1.472 Ac Calc
4.502 Net Calc
UNION PACIFIC CORP.
S.B.E. 843–43–2F, PCL.60
S.C.V.W.D.
LLA. 22015584
DETAIL "B" – N.T.S.
1" = 200'
LAWRENCE E. STONE – ASSESSOR
Cadastral map for assessment purposes only.
Compiled under R. & T. Code, Sec. 327.
Effective Roll Year 2017–2018

EXHIBIT B

Operation and Maintenance Plan

STORM WATER CONTROL PLAN

For

The Edge

City of Milpitas,
Santa Clara County, California

Revised: ~~May 4, 2015~~
~~July 31, 2015~~
~~October 14, 2015~~
~~October 22, 2015~~
~~November 3, 2015~~
April 2016

Prepared for:

SCS Development Co.
404 Saratoga Ave., Suite #100
Santa Clara, CA 95050
(408) 985-6000
Contact: Ken Perry

Engineer:

RUGGERI-JENSEN-AZAR
ENGINEERS ▪ PLANNERS ▪ SURVEYORS

8055 Camino Arroyo
Gilroy, CA 95020
(408) 848-0300
Contact: Caleb LaClair

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C. Special Projects Worksheet
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E. MRP Calculations worksheet
F. Stormwater BMP Calculations and Details
G. Site Plan
H. Treatment Measure Details
I. Geotechnical Investigation
J. Operations and Maintenance (O&M) plan
K. 3rd Party Certification

References

1. California Stormwater Quality Association, *Stormwater Best Management Practice Handbook: New Development and Redevelopment*. January 2003
2. T. Makdissy Consulting, Inc, *Geotechnical Investigation – The Edge – District 1, Building 1*. February 23, 2015
3. Natural Resources Conservation Service, *Web Soil Survey 2.0*, websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx
4. Santa Clara Valley Urban Runoff Pollution Prevention Program, *C.3 Stormwater Handbook.* April 2012.

FIGURE 1 – LOCATION MAP

THE EDGE

MILPITAS, CALIFORNIA

JULY, 2015

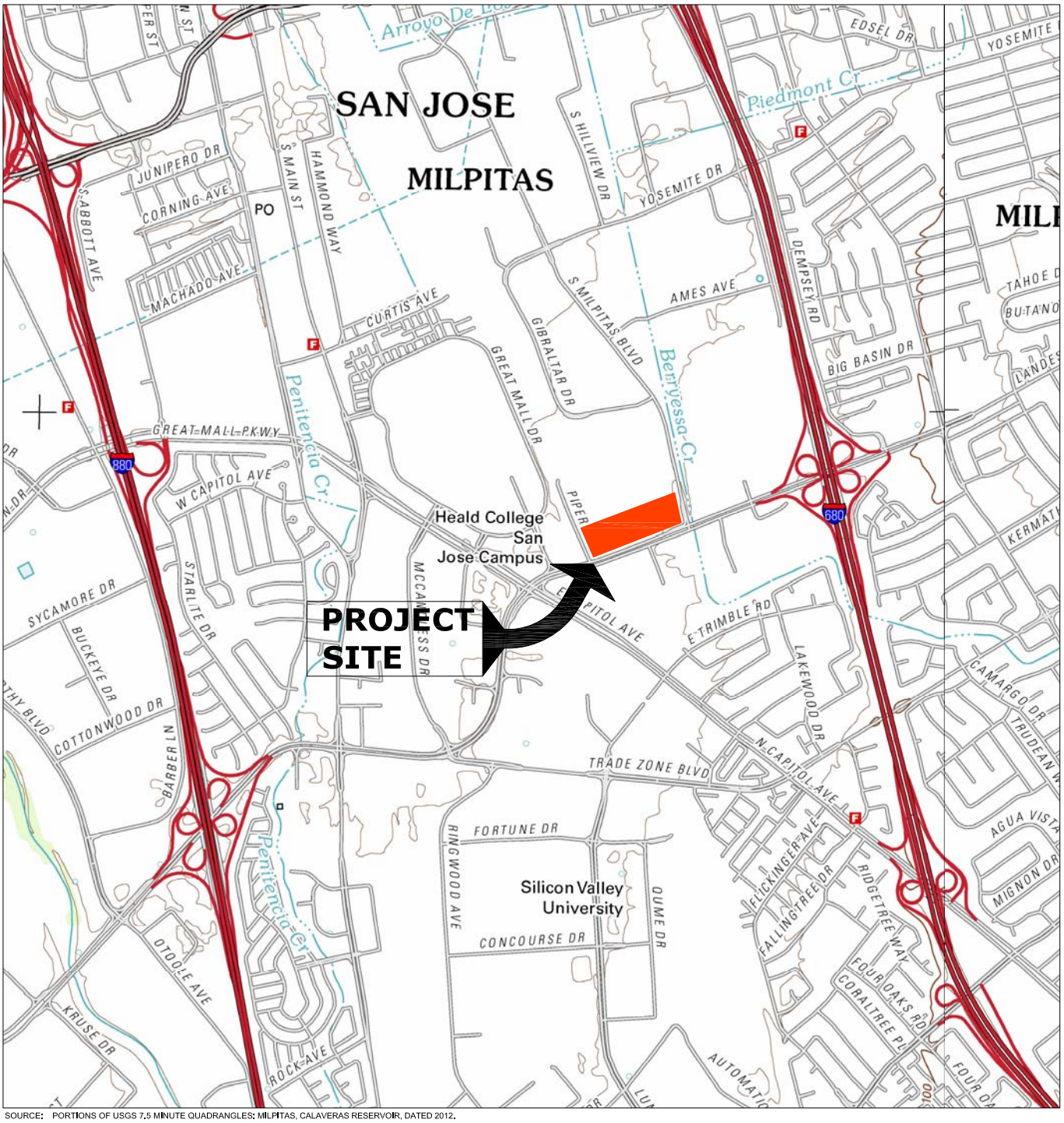
RUGGERI-JENSEN-AZAR
ENGINEERS ■ PLANNERS ■ SURVEYORS
8055 CAMINO ARROYO GILROY, CA 95020
PHONE: (408) 848-0300 FAX: (408) 848-0302

JOB NUMBER: 132003 SHEET 1 OF 1 SHEETS

SITE VICINITY
NO SCALE

N

SCALE: 1"=2000'



SOURCE: PORTIONS OF USGS 7.5 MINUTE QUADRANGLES: MILPITAS, CALAVERAS RESERVOIR, DATED 2012.

PLOT DATE: 7/6/2015 2:03 PM
FILE PATH: W:\Jobs 13\132003\Drawings\FinalStudies & Calculations\SWCP\Fig 1 - Location Map.dwg

1 Project Information

1.1 Purpose of the Report

The City of Milpitas requires all new projects, major developments, and redevelopment projects to comply with the "C.3 Stormwater Handbook" prepared by the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP). The guidelines been developed to comply with the current *National Pollutant Discharge Elimination System* (NPDES) *Stormwater Discharge Permit* (Permit) as issued by the San Francisco Regional Water Quality Control Board.

The guidelines require qualifying developments to apply Low Impact Development (LID) techniques to the maximum extent practicable to minimize the impacts of urban runoff on receiving waters and to promote healthy watersheds. These developments are also required to prepare a *Stormwater Control Plan* (SWCP) to detail how runoff and associated water quality impacts resulting from the development will be controlled or managed. The SWCP is, at a minimum, required to provide the following information:

- Project description and location
- Description of facility activity and pollutants of concern
- Topographic base map and site plan, including drainage areas and BMP locations
- BMP description and calculations
- Site specific soils information
- Post-construction BMP maintenance schedule

This SWCP is prepared by Ruggeri-Jensen-Azar & Associates (Engineer) for SCS Development Co. (Owner) for The Edge Project. This SWCP shall be used for the sole purpose of providing guidance in the preparation, implementation, and on-going maintenance of post-construction Stormwater Control BMP's.

1.2 Site Description

This project is located in the southwestern part of the City of Milpitas, at the intersection of Piper Drive and Montague Expressway (see Figure 1). The project is located within the Milpitas Transit Area Specific Plan area. The project consists of a multi-story mixed use building and parking structure. A new 5 story wrap building, with 5 story parking structure, approximately 13,000 SF of ground level commercial/retail area and 381 upper level residential apartment units. The site improvements also include a new parking lot, medians, enhanced pavement, sidewalks, open space, utilities and landscaping. The total project area consists of 5.24 acres. Refer to Table 1.1 for additional project information.

Table 1.1 – General Project Information	
Project Information	**Description**
Project Name	The Edge
Applicant	SCS Development Co. 404 Saratoga Ave., Suite #100 Santa Clara, CA 95050 Contact: Stephen C. Schott (408) 985-6000
Project Address	Montague Expressway
APN	086-32-029, -026
Current Zoning	TASP – Very High Density Mixed Use, MXD3 Mixed Use
Existing Land Use	Industrial Park
Proposed Land Use	Very High Density
Project Size	5.24 acres
Total Percent Impervious	81%
Building Type & Use	5 Story Building (Wrap style building) (381 apartment units & 13,000 sf commercial/retail space
Type & Location of Parking	657 covered garage 5 story parking. 18 outdoor surface parking.
Site Landscaping	Landscaped paseos, planter boxes, multi-use trail.
Home Owners Association/Property Management Firm	SCS Development Co.
Food Preparation, Cooking, & Eating Areas	All food service/retail areas will have separate grease waste lines and grease waste interceptors connected to the sanitary sewer system.
Outdoor Material Storage Areas	n/a
Waste Generation, Car Wash, Repair, & Fueling	Trash rooms are located inside the building, covered, and floor drains are connected to the sanitary sewer system.

1.3 Existing Site Conditions

The site is currently an industrial site with two existing building and paved parking lots. The site is bounded by Union Pacific Railroad north, existing industrial/commercial developments to the east, Piper Drive to the west, and Montague Expressway. The existing site topography is generally level with slopes averaging 0.6%. Runoff discharges to the public storm drain system in Montague Expressway and eventually to Piper Drive. The project is tributary to the Coyote Creek watershed and, ultimately, San Francisco Bay, approximately 5-miles downstream of the project. See Figure 2 for the existing site conditions.

The National Soil Conservation Service (NRCS) has classified the site soils as Urbanland-Hangerone, Urbanland-Campbell, and Urbanland-Newpark with zero to two percent slopes. The Hydrologic Soil Group for this type of soil is documented as Class D with very slow saturated hydraulic conductivities in the range of 0.06 to 0.6 inches per hour. T. Makdissy Consulting, Inc performed a geotechnical assessment of the site in January 17, 2012. The assessment identified the site soils as highly expansive fat to lean clay with 64%-99% fines in the surface soils. Groundwater was encountered in borings between 8-feet and 20-feet below ground surface. Site specific infiltration tests have not been performed for the project. However, the Geotechnical Report indicated that site soils are expected to have a low permeability value and storm water infiltration will be limited. A complete geotechnical and soils investigation report is available at City of Milpitas offices.

1.4 Opportunities and Constraints for Stormwater Control

The following is a summary of opportunities for stormwater quality:

- Existing Site BMPs – Stormwater BMPs are not present at the project site. Redevelopment of the project site and incorporation of stormwater BMPs will provide an immediate improvement to downstream water quality.
- Landscaping – The project incorporates active and passive landscaping around the buildings, providing opportunity for incorporating BMPs and micro-retention in new landscape areas.
- Impervious Surface – The project seeks to minimize impervious surface by using alternative paving materials and reduced parking lot dimensions where feasible. In addition, redevelopment of the existing site results in a reduction in total site impervious surface area and corresponding storm water runoff.
- Home Owners Associations (HOA) – The project will be managed by an HOA, which allows for consistent maintenance of stormwater facilities. The HOA can also provide educational information to future residents regarding water quality and BMPs, and implement CC&R's to control the generation and movement of stormwater pollutants.

The following is a summary of constraints for stormwater quality:

- Soil Conditions – Site soils consist of highly expansive clay with Class D hydrologic soil group classification. This type of soil not allow for effective infiltration of stormwater, so all landscape based BMPs shall be lined and outfitted with a subdrain system. The expansive soil also limits the discharge of runoff adjacent to structures and pavement to protect against heaving and cracking.
- Groundwater – Groundwater was encountered above 10-feet below ground surface in some locations at the project site. Infiltration of stormwater runoff will not be allowed due to the high water table, so all landscape based BMPs shall be lined and outfitted with a subdrain system.
- Site Density – The project is a high density urban redevelopment project, which limits the amount of available space to incorporate BMPs. While the proposed improvements enhance landscaping areas, the orientation and distribution of landscaping may not always allow for efficient incorporation of traditional BMPs.
- Flood Conditions – The project is located within FEMA Flood Zone D and AH (100-year flood area with 1-ft to 3-ft average depths). A flood has been prepared for the project to establish effective floodways through the development. As a result, the buildings are raised above the surrounding improvements, and retaining walls and grading slopes incorporated around the buildings. This reduces the amount of effective landscape area that can be used for BMPs.

1.5 Hydrograph Modification Management Requirements

The project is located in an area that is over 90% built-out with greater than 65% impervious area. Therefore, the project is not required to create a Hydrograph Modification Management Plan, per Appendix E-2 of the SCVURPPP Handbook.

1.6 Infiltration and Rainwater Harvesting Feasibility

The San Francisco Regional Water Quality Control Board (Board) places a high priority on infiltration, evapotranspiration, and rainwater harvesting as methods to manage stormwater as part of the recent NPDES Permit issued on October 14, 2009. In response to this permit, the Bay Area Stormwater Management Agencies Association (BASMAA) submitted a "Harvest and Use, Infiltration and Evapotranspiration Feasibility/Infeasibility Criteria Report" to the Board in 2011. This report outlines criteria for when infiltration/evapotranspiration and rainwater harvesting are infeasible for a project. In the event that both infiltration/evapotranspiration and rainwater harvesting are infeasible, a project is only required to implement biotreatment while maximizing infiltration opportunities. The Board has accepted this report, and as a result, requires all agencies to track the feasibility through a worksheet/checklist method and submit all findings to the Board. SCVURPPP has prepared worksheet procedures for use in determining the feasibility of infiltration/evapotranspiration and rainwater harvesting on a project specific basis.

The completed feasibility worksheets are provided in Appendix B. Infiltration is considered infeasible since site soils have a hydraulic conductivity less than 1.6 inches/hour and are classified as Hydrologic Soil Group D. Rainwater Harvesting is considered infeasible because recycled water service is available at the project and will be used to irrigate all

1.7 Special Project Eligibility

The San Francisco Regional Water Quality Control Board (Board) allows LID credits for three categories of "Smart Growth" development, specifically urban infill, high-density, and transit oriented developments projects, called "Special Projects". Special Projects were approved because, when considered at the watershed level, smart growth development projects can either reduce existing impervious surfaces, or create less "accessory" impervious areas and automobile-related pollutant impacts. The conclusion was that these types of projects were recognized by the Water Board as having an inherent water quality and other environmental benefits.

Projects that receive LID treatment reduction credits are allowed to use specific types of non-LID treatment, if the use of LID treatment is first evaluated and determined to be infeasible. The LID treatment reduction credit is applied to the project as a percentage of total impervious surface area allowed to be managed by non-LID treatment facilities. The types of non-LID treatment facilities that may be used are:

- High flow-rate media filters, and
- High flow-rate tree well filters.

The SCVURPPP prepared worksheet procedures for use in determining project eligibility for Special Project status and corresponding LID treatment reduction credits. The completed worksheet is provided in Appendix C. The Edge Project is **NOT** eligible for Special Project status.

FIGURE 2 – EXISTING CONDITIONS
THE EDGE
MILPITAS, CALIFORNIA

JULY 2015

RUGGERI-JENSEN-AZAR
ENGINEERS ■ PLANNERS ■ SURVEYORS
8055 CAMINO ARROYO GILROY, CA 95020
PHONE: (408) 848-0300 FAX: (408) 848-0302

JOB NUMBER: 132003 SHEET 1 OF 1 SHEETS

LEGEND

- SITE BOUNDARY (5.6 AC)
- STUDY AREA (5.0 AC)
- MONTAGUE EXPWY DEDICATION (0.6 AC)
- IMPERVIOUS AREA
  - TOTAL SITE = 4.8 AC (86%)
  - STUDY AREA = 4.3 AC (86%)
- EXISTING STORM DRAIN

SCALE: 1"=100'

BUILDING
BUILDING
PAVEMENT
RAILROAD TRACKS
MONTAGUE EXPRESSWAY
PIPER DRIVE

50.71 18" RCP 48.03 12" RCP
18" RCP
50.27 48.47
21" RCP
47.07 21" RCP 46.05 18" RCP
21" RCP
43.48 12" RCP S = 0.0020 41.16
36" CMP

PLOT DATE: 7/6/2015 2:08 PM
FILE PATH: W:\Jobs 13\132003\Drawings\FinalStudies & Calculations\SWCP\Fig 2 - Existing Conditions.dwg

2 Stormwater Treatment Evaluation

The Project is not significantly increasing impervious surfaces from the existing condition since it is redeveloping an existing industrial/office complex. However, the high-density urban nature of the project means there is a high percentage of impervious surface, which has the potential to impact water quality by concentrating and transporting pollutants to downstream receiving waters.

Stormwater Best Management Practices (BMPs) including Low Impact Development (LID) site design strategies, Integrated Management Practices, and source controls will be used to reduce runoff volume, peak flow, and pollutant loadings. All BMP's selected for the Project shall comply with the City's Guidelines.

2.1 LID Site Design Strategies

The project implements a "Start at the Source" design through the use of LID site planning and design techniques. The following LID strategies are being used to the maximum extent practicable (MEP) to comply with stormwater control requirements:

- Limit Impervious Surfaces – The following site design measures are used to limit impervious surface to the MEP:
  - Standard parking stall widths are reduced to 8.75-ft, and 16 compact parking stalls are provided in order to reduce pavement surface.
  - Turf Block pavement is used in the Emergency Vehicle Access along the west side of the building.
  - The building design includes four internal courtyards open to the sky, which will incorporate landscaping areas to encourage evapotranspiration.
- Disconnect Impervious Surfaces – The project seeks to disconnect impervious surface to the MEP by directing impervious surface runoff and roof downspouts to landscape based BMPs.
- Incorporate Self-treating Areas – The project incorporates self-treating areas to the MEP by providing generous landscaping areas along Montague Expressway. The landscape areas receive no additional runoff from impervious surfaces and are considered self-treating because the infiltration and natural processes that occurs within the landscape area can prevent pollutants from combining with stormwater.
- Landscaping Design – The project incorporates large canopy trees and shrubs where possible to promote evapotranspiration and to provide shade. The project also incorporates drought resistant plants and efficient irrigation methods to minimize water use and avoid nuisance water as a result of excessive irrigation.

- Water Conservation – Montague Expressway contains an active 12-inch recycled water main. The project will install recycled water services for use in supplying water for landscape irrigation.
- Preserve Existing Open Space – The project preserves approximately 19,600 sf of existing landscape and creates approximately 19,300-sf of existing open space in the form of large 20 ft and 14 ft wide linear open space/landscape corridors along Montague Expressway.
- Source Control – The project reduces contact between stormwater runoff and pollutants through the use of Source Control measures (see Section 4).

2.2 Treatment Control BMPs

Due to the opportunities and constraints identified in Section 1.4 of this SWCP, the treatment control BMPs described in Table 2.1 has been selected for use in this project. As mentioned previously, micro-detention in landscape areas is also incorporated to provide additional benefits.

Table 2.1 – Selected Treatment Control BMPs

BMP	Description
Biotreatment – Landscape Detention	A depressed vegetated area with porous engineered soils and subdrain system that captures, treats, and infiltrates stormwater runoff. They are suitable for removal of sediment, nutrients, trash, metals, bacteria, oil and grease, and organics. They will be used to capture and treat runoff from parking areas, building rooftops and landscaping.
Self-Treating Area	A broad shallow channel with a dense planting and vegetation covering the side slopes and bottom.

3 Selection and Design of Stormwater Treatment BMPs

3.1 Treatment Area Description

The Project is split into seven (7) drainage areas based on the grading and drainage shown in the project improvement plans. A description of each drainage area and selected BMP is provided below. See Appendix G and H for specific treatment area details.

Areas 1 thru 25

Description	Area consists of either or combination of parking lot, building rooftop, pedestrian walkway, and landscaping. Runoff discharges via surface runoff and, or storm drain pipes to bioswale treatment areas.
Pollutants of Concern	Total Petroleum Hydrocarbons, Heavy Metals, PAHs, PCBs, pH, Surfactant, Oil, Sediment, Trash, Elevated Temperatures, Nitrogen, Phosphorus, Bacteria, Viruses, and Organics
BMP Type	Bioretention Basin

Area 26

Description	A self treating area that consists of landscape area, and miscellaneous pedestrian ramp areas. The southerly 20' of the project is a landscape corridor part of the open space along Montague Expressway. This will be a lush vegetated area as required by the City Transit Area Specific Plan Landscape requirements. This area will treat "what lands from the sky". There may be two biotreatment swales NOT a part of this project, and which exist to treat Montague Expressway runoff (this is part of the County of Santa Clara project and has no association with this project).
Pollutants of Concern	Total Petroleum Hydrocarbons, Heavy Metals, PAHs, PCBs, pH, Surfactant, Oil, Sediment, Trash, Elevated Temperatures, Nitrogen, Phosphorus, Bacteria, Viruses, and Organics
BMP Type	Self-Treating Areas

3.2 BMP Sizing Calculations

All BMPs shall be sized according to the SCVURPPP Handbook. A summary of the drainage area BMP sizing calculations are provided in Table 3.1. The complete BMP calculations and details are provided in Appendix F.

3.3 Source Control Measures

The following stormwater source control measures are anticipated to be implemented with the Project:

Table 3.1 – Selected Source Control Measures

Potential Source	BMP Description
Education	Property owner is responsible to provide practical information and materials to the employees and tenants on general practices that contribute to the protection of storm water quality. Materials shall include: • Chemical use guidelines and restrictions on the property. • The proper handling of material such as fertilizers, pesticides, and cleaning solutions. • The environmental and legal impacts of illegal dumping of harmful substances into storm drains and sewers. • Hazardous waste collection programs. • Proper procedures for spill prevention and clean up. • Proper storage of materials that pose pollution risks to local waters. • Carpooling programs and public transportation alternatives to driving.
Landscape Management	Ongoing management consistent with the CASQA *Stormwater Best Management Practice Handbook: New Development and Redevelopment* BMPs SD-10 & SD-12, including limiting pesticide and fertilizer usage and minimizing irrigation and runoff.
BMP Maintenance	Property owner is responsible for the inspection and maintenance of structural BMPs consistent with this SWCP and the City of Milpitas Guidelines. (See Section 5)
Litter Control	Litter shall be routinely picked up and properly disposed. If necessary, signage shall be installed to discourage littering.
Employee Training	Property owner is responsible for training employees or hiring an outside consultant to properly implement this SWCP.
Drain Inlet Inspection	All inlets shall be marked with “No Dumping Drains to Bay” or similar message. Property owner is responsible for inspection and maintenance of all privately owned drain inlets.
Street Sweeping	Streets and parking areas will be swept weekly, weather permitting, and prior to the rainy season.
Vehicle Washing	Vehicle washing shall be strictly prohibited onsite.
Vehicle Fueling	Vehicle fueling shall be strictly prohibited onsite.
Outdoor Pesticide Use	Where possible, pest resistant plants will be used. Planting for swales will be selected to be appropriate for the soil and moisture conditions. Landscaping is to be maintained using integrated pest management principles with minimal or no use of pesticides.
Outdoor Trash Enclosures	Outdoor trash enclosures will be self-contained, and leak proof compactors, and equipped with a drain inlet connected to the sanitary sewer system.

Table 3.1 – Selected Source Control Measures (cont.)	
Potential Source	**BMP Description**
Delivery Area/Loading Docks	Delivery areas and loading docks shall be covered and equipped with a drain inlet connected to the sanitary sewer system.
Outdoor Material Storage	Outdoor material storage shall be strictly prohibited onsite. All stored materials shall be sufficiently covered.
Fire Sprinklers	Sprinkler tests will drain to landscape treatment areas before entering the storm drain system.

3.4 Permitting and Code Compliance

There are no known conflicts between this SWCP and the City of Milpitas ordinances or policies. If any conflicts are found, the City's ordinances and policies will take precedence.

3.5 BMP Operation and Maintenance Plan – See Appendix J

4 Certification

SWCP Certification

The selection, sizing, and design of Stormwater BMPs and other control measures in this SWCP meet the requirements of the Regional Water Quality Control Board Order R2-2009-0074, as amended.

Owner/Developer Signature	Date
Owner/Developer Name and Title	Telephone Number
Engineer Signature	4/18/2016 Date
Charles LaClaire, Project Manager	408-848-0300
Engineer Name and Title	Telephone Number

As-Constructed Confirmation

The *Engineer* confirms that this Stormwater Control Plan has been built and implemented per the approved Civil Engineer construction plans.

Owner/Developer Signature	Date
Owner/Developer Name and Title	Telephone Number
Engineer Signature	January 29, 2021 Date
Luis Santiago-Sotelo	408-826-9458
Engineer Name and Title	Telephone Number

LICENSED PROFESSIONAL ENGINEER
LUIS SANTIAGO-SOTELO
C79665
EXP. _____
CIVIL
STATE OF CALIFORNIA

Appendix A

Provision C.3 Data Form

City of Milpitas – Stormwater Requirements C.3 Data Form

Santa Clara Valley Urban Run-Off Pollution Prevention Program

Which Projects Must Comply with Stormwater Requirements?

All projects that create and/or replace **10,000 sq. ft.** or more of impervious surface on the project site must fill out this worksheet and submit it with the development project application.

All restaurants, auto service facilities, retail gasoline outlets, and uncovered parking lot projects (stand-alone or part of another development project, including the top uncovered portion of parking structures) that create and/or replace **5,000 sq. ft.** or more of impervious surface on the project site must also fill out this worksheet.

Interior remodeling projects, routine maintenance or repair projects such as re-roofing and re-paving, and single family homes that are not part of a larger plan of development are **NOT** required to complete this worksheet.

What is an Impervious Surface?

An impervious surface is a surface covering or pavement that prevents the land's natural ability to absorb and infiltrate rainfall/stormwater. Impervious surfaces include, but are not limited to rooftops, walkways, paved patios, driveways, parking lots, storage areas, impervious concrete and asphalt, and any other continuous watertight pavement or covering. Pervious pavement, underlain with pervious soil or pervious storage material (e.g., drain rock), that infiltrates rainfall at a rate equal to or greater than surrounding unpaved areas OR that stores and infiltrates the water quality design volume specified in Provision C.3.d of the Municipal Regional Stormwater Permit (MRP) is not considered an impervious surface.

For More Information

For more information regarding selection of Best Management Practices for stormwater pollution prevention or stormwater treatment in Santa Clara County: http://www.scvurppp-w2k.com/c3_handbook_2012.shtml

1. Project Information

Project Name: The Edge **APN #** 086-32-029, 086-32-026

Project Address: 737 Montague Expressway, Milpitas CA

Cross Streets: Montague Expressway and Piper Drive

Applicant/Developer Name: SCS Development Company

Project Phase(s): 1 of 1 **Engineer:** Ruggeri-Jensen-Azar

Project Type (Check all that apply): ☐ New Development ☑ Redevelopment

☑ Residential ☑ Commercial ☐ Industrial ☑ Mixed Use ☐ Public ☐ Institutional

☐ Restaurant ☐ Uncovered Parking ☐ Retail Gas Outlet ☐ Auto Service (SIC code)_____
(5013-5014, 5541, 7532-7534, 7536-7539)

☐ Other _____

Project Description: Demolition of 2 industrial buildings, parking lots, and portion of non-operational rail line. Construction of a 6-story podium building with 381 units, 13,000-SF commercial space, 8-level 657 space parking structure, access roads, and open space. +/-AC of site to be aquired by Santa Clara County for Montague Expy Improvements.

Project Watershed/Receiving Water (creek, river, or bay): Wrigley-Ford Creek

2. Project Size - THE EDGE

a. Total Site Area: 5.26 acre	b. Total Site Area Disturbed: 5.26 acre (including clearing, grading, or excavating)			
	Existing Area (ft^2)	Proposed Area ($ft^{2)}$		Total Post-Project Area (ft^2)
		Replaced	New	
Impervious Area				
Roof				
Parking				
Sidewalks and Streets			2,090	
c. Total Impervious Area	188,210	188,210		190,300
d. Total new and replaced impervious area		190,300		
Pervious Area				
Landscaping				
Pervious Paving				
Other (e.g. Green Roof)				
e. Total Pervious Area	40,945	19,600	19,250	38,850
f. Percent Replacement of Impervious Area in Redevelopment Projects (Replaced Total Impervious Area ÷ Existing Total Impervious Area) x 100% = 100 %				

3. State Construction General Permit Applicability:

a. Is #2.b. equal to one acre or more?

☑ Yes, applicant must obtain coverage under the State Construction General Permit (i.e., file a Notice of Intent and prepare a Stormwater Pollution Prevention Plan) (see www.swrcb.ca.gov/water_issues/programs/stormwater/construction.shtml for details).

☐ No, applicant does not need coverage under the State Construction General Permit.

4. MRP Provision C.3 Applicability:

a. Is #2.d. equal to **10,000** sq. ft. or more, or **5,000** sq. ft. or more for restaurants, auto service facilities, retail gas outlets, and uncovered parking?

☑ Yes, C.3. source control, site design, and treatment requirements apply.

☐ No, C.3. source control and site design requirements may apply – check with local agency

b. Is #2.f. equal to 50% or more?

☑ Yes, C.3. requirements (site design, source control, as appropriate, and stormwater treatment) apply to entire site.

☐ No, C.3. requirements only apply to impervious area created and/or replaced.

5. Hydromodification Management (HM) Applicability:

a. Does project create and/or replace one acre or more of impervious surface AND is the total post-project impervious area greater than the pre-project (existing) impervious area?

☑ Yes (continue) ☐ No – exempt from HM, go to page 3

b. Is the project located in an area of HM applicability (green area) on the HM Applicability Map? (www.scvurppp-w2k.com/hmp_maps.htm)

☐ Yes, project must implement HM requirements

☑ No, project is exempt from HM requirements

6. Selection of Specific Stormwater Control Measures: - THE EDGE

Site Design Measures

- ☐ Minimize land disturbed
- ☑ Minimize impervious surfaces
- ☑ Minimum-impact street or parking lot design
- ☐ Cluster structures/ pavement
- ☑ Disconnected downspouts
- ☐ Pervious pavement
- ☐ Green roof
- ☑ Microdetention in landscape
- ☑ Other self-treating area
- ☐ Self-retaining area
- ☐ Rainwater harvesting and use (e.g., rain barrel, cistern connected to roof drains) [1]
- ☐ Preserved open space: _____ ac. or sq. ft .(circle one)
- ☐ Protected riparian and wetland areas/buffers (Setback from top of bank: _____ft.)
- ☐ Other _____

Source Control Measures

- ☐ Alternative building materials
- ☐ Wash area/racks, drain to sanitary sewer[2]
- ☑ Covered dumpster area, drain to sanitary sewer[2]
- ☐ Sanitary sewer connection or accessible cleanout for swimming pool/spa/fountain[2]
- ☑ Beneficial landscaping (minimize irrigation, runoff, pesticides and fertilizers; promotes treatment)
- ☐ Outdoor material storage protection
- ☐ Covers, drains for loading docks, maintenance bays, fueling areas
- ☑ Maintenance (pavement sweeping, catch basin cleaning, good housekeeping)
- ☑ Storm drain labeling
- ☐ Other _____

Treatment Systems

- ☐ None (all impervious surface drains to self-retaining areas)

LID Treatment

- ☐ Rainwater harvest and use (e.g., cistern or rain barrel sized for C.3.d treatment)
- ☐ Infiltration basin
- ☐ Infiltration trench
- ☐ Exfiltration trench
- ☐ Underground detention and infiltration system (e.g. pervious pavement drain rock, large diameter conduit)

Biotreatment [3]

- ☑ Bioretention area
- ☐ Flow-through planter
- ☐ Tree box with bioretention soils
- ☐ Other _____

Other Treatment Methods

- ☐ Proprietary tree box filter[4]
- ☐ Media filter (sand, compost, or proprietary media)[4]
- ☐ Vegetated filter strip[5]
- ☐ Dry detention basin[5]
- ☐ Other _____

Flow Duration Controls for Hydromodification Management (HM)

- ☐ Detention basin
- ☐ Underground tank or vault
- ☐ Bioretention with outlet control
- ☐ Other _____

[1] Optional site design measure; does not have to be sized to comply with Provision C.3.d treatment requirements.
[2] Subject to sanitary sewer authority requirements.
[3] Biotreatment measures are allowed only with completed feasibility analysis showing that infiltration and rainwater harvest and use are infeasible.
[4] These treatment measures are only allowed if the project qualifies as a "Special Project".
[5] These treatment measures are only allowed as part of a multi-step treatment process.

7. Treatment System Sizing for Projects with Treatment Requirements - THE EDGE

Indicate the hydraulic sizing criteria used and provide the calculated design flow or volume:

Treatment System Component	Hydraulic Sizing Criteria Used[3]	Design Flow or Volume (cfs or cu.ft.)
Refer to Table 1 page 20 of The Edge storm water	3	
control plan.		

[3]Key: 1a: Volume – WEF Method
1b: Volume – CASQA BMP Handbook Method
2a: Flow – Factored Flood Flow Method
2b: Flow – CASQA BMP Handbook Method
2c: Flow – Uniform Intensity Method
3: Combination Flow and Volume Design Basis

8. Alternative Certification: Was the treatment system sizing and design reviewed by a qualified third-party professional that is not a member of the project team or agency staff?

☑ Yes ☐ No Name of Reviewer: Catlin Gilmore, PE - Schaaf & Wheeler

9. Operation & Maintenance Information

A. Property Owner's Name: SCS Development Company

B. Responsible Party for Stormwater Treatment/Hydromodification Control O&M:

a. Name: SCS Development Company

b. Address: 404 Saratoga Ave., Suite 100, Santa Clara, CA 95050

c. Phone/E-mail: 408-283-91910

This section to be completed by City of Milpitas staff.

O&M Responsibility Mechanism

Indicate how responsibility for O&M is assured. Check all that apply:

☐ O&M Agreement

☐ Other mechanism that assigns responsibility (describe below):

_____

_____

Reviewed:

Planning Department	**Public Works Department**
Planning Division: _____	Land Development: _____
Other (Specify): _____	Other (Specify): _____

Appendix B

Infiltration/Harvesting infeasibility worksheet

Infiltration/Harvesting and Use Feasibility Screening Worksheet

Apply these screening criteria for ***C.3 Regulated Projects**** *required to implement Provision C.3 stormwater treatment requirements. See the Glossary (Attachment 1) for definitions of terms marked with an asterisk (*). Contact municipal staff to determine whether the project meets* ***Special Project**** *criteria. If the project meets Special Project criteria, it may receive LID treatment reduction credits.*

1. Applicant Info

Site Address: 737 Montague Expressway, Milpitas , CA APN: 086-32-029, 086-32-026

Applicant Name: SCS Development Company Phone No.: 408-283-9190

Mailing Address: 404 Saratoga Ave. Suit 100 Santa Clara, 95050

2. Feasibility Screening for Infiltration

Do site soils either (a) have a **saturated hydraulic conductivity*** (Ksat) that will NOT allow infiltration of 80% of the annual runoff (that is, the Ksat is LESS than 1.6 inches/hour), or, if the Ksat rate is not available, (b) consist of Type C or D soils?[1]

☒ Yes (continue) ☐ No – complete the Infiltration Feasibility Worksheet. If infiltration of the C.3.d amount of runoff is found to be feasible, there is no need to complete the rest of this screening worksheet.

3. Recycled Water Use

Check the box if the project is installing and using a recycled water plumbing system for non-potable water use.

☒ The project is installing a recycled water plumbing system, and installation of a second non-potable water system for harvested rainwater is impractical, and considered infeasible due to cost considerations. Skip to Section 6.

4. Calculate the Potential Rainwater Capture Area* for Screening of Harvesting and Use

Complete this section for the entire project area. If rainwater harvesting and use is infeasible for the entire site, and the project includes one or more buildings that each have an individual roof area of 10,000 sq. ft. or more, then complete Sections 4 and 5 of this form for each of these buildings.

4.1 Table 1 for (check one): ☐ The whole project ☐ Area of 1 building roof (10,000 sq.ft. min.)

Table 1: Calculation of the Potential Rainwater Capture Area*

The Potential Rainwater Capture Area may consist of either the entire project area or one building with a roof area of 10,000 sq. ft. or more.

	1	2	3	4
	Pre-Project Impervious surface[2] (sq.ft.), if applicable	Proposed Impervious Surface[2] (IS), in sq. ft.		Post-project landscaping (sq.ft.), if applicable
		Replaced[3] IS	Created[4] IS	
a. Enter the totals for the area to be evaluated:				
b. Sum of replaced and created impervious surface:	N/A			N/A
c. Area of existing impervious surface that will NOT be replaced by the project.		N/A		N/A

[1] Base this response on the site-specific soil report, if available. If this is not available, consult soil hydraulic conductivity maps in Attachment 3.

[2], Enter the total of all impervious surfaces, including the building footprint, driveway(s), patio(s), impervious deck(s), unroofed porch(es), uncovered parking lot (including top deck of parking structure), impervious trails, miscellaneous paving or structures, and off-lot impervious surface (new, contiguous impervious surface created from road projects, including sidewalks and/or bike lanes built as part of new street). Impervious surfaces do NOT include vegetated roofs or pervious pavement that stores and infiltrates rainfall at a rate equal to immediately surrounding, unpaved landscaped areas, or that stores and infiltrates the **C.3.d amount of runoff***.

[3] "Replaced" means that the project will install impervious surface where existing impervious surface is removed.

[4] "Created" means the project will install new impervious surface where there is currently no impervious surface.

* For definitions, see Glossary (Attachment 1).

4.2 Answer this question ONLY if you are completing this section for the entire project area. If existing impervious surface will be replaced by the project, does the area to be replaced equal 50% or more of the existing area of impervious surface? *(Refer to Table 1, Row "a". Is the area in Column 2 > 50% of Column 1?)*

☐ Yes, C.3. stormwater treatment requirements apply to areas of impervious surface that will remain in place as well as the area created and/or replaced. This is known as the 50% rule.

☐ No, C.3. requirements apply only to the impervious area created and/or replaced.

4.3 Enter the square footage of the **Potential Rainwater Capture Area***. If you are evaluating only the roof area of a building, or you answered "no" to Question 4.2, this amount is from Row "b" in Table 1. If you answered "yes" to Question 4.2, this amount is the sum of Rows "b" and "c" in Table 1.:

_____ square feet.

4.4 Convert the measurement of the **Potential Rainwater Capture Area*** from square feet to acres (divide the amount in Item 4.3 by 43,560):

_____ acres.

5. Feasibility Screening for Rainwater Harvesting and Use

5.1 Use of harvested rainwater for landscape irrigation:

Is the onsite landscaping LESS than 2.5 times the size of the **Potential Rainwater Capture Area*** (Item 4.3)? (Note that the landscape area(s) would have to be contiguous and within the same Drainage Management Area to use harvested rainwater for irrigation via gravity flow.)

☐ Yes (continue) ☐ No – Direct runoff from impervious areas to **self-retaining areas*** OR refer to Table 11 and the curves in Appendix F of the LID Feasibility Report to evaluate feasibility of harvesting and using the C.3.d amount of runoff for irrigation.

5.2 Use of harvested rainwater for toilet flushing or non-potable industrial use:

a. Residential Projects: Proposed number of dwelling units:_____
Calculate the dwelling units per impervious acre by dividing the number of dwelling units by the acres of the **Potential Rainwater Capture Area*** in Item 4.4. Enter the result here:

_____)

Is the number of dwelling units per impervious acre LESS than 100 (assuming 2.7 occupants/unit)?

☐ Yes (continue) ☐ No – complete the Harvest/Use Feasibility Worksheet.

b. Commercial/Industrial Projects: Proposed interior floor area:_____ (sq. ft.)

Calculate the proposed interior floor area (sq.ft.) per acre of impervious surface by *dividing the interior floor area (sq.ft.) by the acres of the* ***Potential Rainwater Capture Area**** *in Item 4.4. Enter the result here:*

_____

Is the square footage of the interior floor space per impervious acre LESS than 70,000 sq. ft.?

☐ Yes (continue) ☐ No – complete the Harvest/Use Feasibility Worksheet

c. School Projects: Proposed interior floor area:_____ (sq. ft.)

Calculate the proposed interior floor area per acre of impervious surface by *dividing the interior floor area (sq.ft.) by the acres of the* ***Potential Rainwater Capture Area**** *in Item 4.4 . Enter the result here:*

_____.

Is the square footage of the interior floor space per impervious acre LESS than 21,000 sq. ft.?

☐ Yes (continue) ☐ No – complete the Harvest/Use Feasibility Worksheet

* For definitions, see Glossary (Attachment 1).

d. Mixed Commercial and Residential Use Projects

- Evaluate the residential toilet flushing demand based on the dwelling units per impervious acre for the residential portion of the project, following the instructions in Item 5.2.a, except you will use a prorated acreage of impervious surface, based on the percentage of the project dedicated to residential use.
- Evaluate the commercial toilet flushing demand per impervious acre for the commercial portion of the project, following the instructions in Item 5.2.a, except you will use a prorated acreage of impervious surface, based on the percentage of the project dedicated to commercial use.

e. Industrial Projects: Estimated non-potable water demand (gal/day): _____

Is the non-potable demand LESS than 2,400 gal/day per acre of the Potential Rainwater Capture Area?

☐ Yes (continue) ☐ No – refer to the curves in Appendix F of the LID Feasibility Report to evaluate feasibility of harvesting and using the C.3.d amount of runoff for industrial use.

6. Use of Biotreatment

If only the "Yes" boxes were checked for all questions in Sections 2 and 5, or the project will have a recycled water system for non-potable use (Section 3), then the applicant may use appropriately designed bioretention facilities for compliance with C.3 treatment requirements. The applicant is encouraged to maximize infiltration of stormwater if site conditions allow.

7. Results of Screening Analysis

Based on this screening analysis, the following steps will be taken for the project (check all that apply):

☒ Implement biotreatment measures (such as an appropriately designed bioretention area).

☐ Conduct further analysis of infiltration feasibility by completing the Infiltration Feasibility Worksheet.

☐ Conduct further analysis of rainwater harvesting and use (check one):

- ☐ Complete the Rainwater Harvesting and Use Feasibility Worksheet for:
  - ☐ The entire project
  - ☐ Individual building(s), if applicable, describe:_____
- ☐ Evaluate the feasibility of harvesting and using the C.3.d amount of runoff for irrigation, based on Table 11 and the curves in Appendix F of the LID Feasibility Report
- ☐ Evaluate the feasibility of harvesting and using the C.3.d amount of runoff for non-potable industrial use, based on the curves in Appendix F of the LID Feasibility Report.

* For definitions, see Glossary (Attachment 1).

LID Feasibility Worksheet
Attachment 1: Glossary

Biotreatment

A type of low impact development treatment allowed under Provision C.3.c of the *MRP**, if infiltration, evapotranspiration and rainwater harvesting and use are infeasible. As required by Provision C.3.c.i(2)(vi), biotreatment systems shall be designed to have a surface area no smaller than what is required to accommodate a 5 inches/hour stormwater runoff surface loading rate and shall use biotreatment soil as specified in the biotreatment soil specifications submitted by the MRP co-permittees to the Regional Water Quality Control Board on May 1, 2011, or equivalent.

C.3 Regulated Projects:

Development projects as defined by Provision C.3.b.ii of the *MRP**. This includes public and private projects that create and/or replace 10,000 square feet or more of impervious surface, and restaurants, retail gasoline outlets, auto service facilities, and uncovered parking lots (stand-alone or part of another use) that create and/or replace 5,000 square feet or more of impervious surface. Single family homes that are not part of a larger plan of development are specifically excluded.

C.3.d Amount of Runoff

The amount of stormwater runoff from C.3 Regulated Projects that must receive stormwater treatment, as described by hydraulic sizing criteria in Provision C.3.d of the *MRP**.

Heritage Tree

An individual tree of any size or species given the 'heritage tree' designation as defined by the municipality's tree ordinance or other section of the municipal code.

Infiltration Devices

Infiltration facilities that are deeper that they are wide and designed to infiltrate stormwater runoff into the subsurface and, as designed, bypass the natural groundwater protection afforded by surface soil. These devices include dry wells, injection wells and infiltration trenches (includes French drains).

Infiltration Facilities

A term that refers to both infiltration devices and measures.

Infiltration Measures

Infiltration facilities that are wider than they are deep (e.g., bioinfiltration, infiltration basins and shallow wide infiltration trenches and dry wells).

Low Impact Development (LID) Treatment

Removal of pollutants from stormwater runoff using the following types of stormwater treatment measures: rainwater harvesting and use, infiltration, evapotranspiration, or, where these are infeasible, biotreatment.

Municipal Regional Stormwater Permit (MRP)

The municipal stormwater NPDES permit under which discharges are permitted from municipal separate storm sewer systems throughout the NPDES Phase I jurisdictions within the San Francisco Bay Region.

Potential Rainwater Capture Area

The impervious area from which rainwater may be potentially be captured, if rainwater harvesting and use were implemented for a project. If the entire site is evaluated for rainwater harvesting and use feasibility, this consists of the impervious area of the proposed project; for redevelopment projects that replace 50% or more of the existing impervious surface, it also includes the areas of existing impervious surface that are not modified by the project. If only a roof area or designated impervious area is evaluated for rainwater harvesting and use feasibility, the potential rainwater capture area consists only of the applicable impervious area.

Screening Density

A threshold of density (e.g., number of units or interior floor area) per acre of impervious surface, associated with a certain potential demand for non-potable water, for C.3 regulated projects. The screening density varies by municipality, according to location (see Attachment 2.) If the screening density is met or exceeded, the Rainwater Harvesting and Use Feasibility Worksheet must be completed for the project.

Self-Retaining Area

A portion of a development site designed to retain the first one inch of rainfall (by ponding and infiltration and/or evapotranspiration) without producing stormwater runoff. Self-retaining areas must have at least a 2:1 ratio of contributing area to a self-retaining area and a 3” ponding depth. Self-retaining areas may include graded depressions with landscaping or pervious pavement.

Areas that Contribute Runoff to Self-Retaining Areas are impervious or partially pervious areas that drain to self-retaining areas.

Self-Treating Area

A portion of a development site in which infiltration, evapotranspiration and other natural processes remove pollutants from stormwater. Self-treating areas may include conserved natural open areas, areas of landscaping, green roofs and pervious pavement. Self-treating areas treat only the rain falling on them and do not receive stormwater runoff from other areas.

Special Projects

Certain types of smart growth, high density and transit oriented development projects that are allowed, under Provision C.3.e.ii of the MRP, to receive LID treatment reductions. The specific development project types will be described in an amendment to the MRP, anticipated in Fall 2011.

Total Project Cost

Total project cost includes the construction (labor) and materials cost of the physical improvements proposed; however, it does not include land, transactions, financing, permitting, demolition, or off-site mitigation costs.

LID Feasibility Worksheet
Attachment 2: Toilet-Flushing Demand for Harvested Rainwater[1] Required for Rainwater Harvesting Feasibility per Impervious Acre (IA) [2]

Table 1 - Alameda County:

Rain Gauge[3]	Required Demand (gal/day/IA)[4]	Residential		Office/Retail[5]		Schools[6]	
		No. of residents per IA[7]	Dwelling Units per IA[8]	Employees per IA[9]	Interior Floor Area (sq.ft./IA)[10]	Employees[11] per IA	Interior Floor Area (sq.ft./IA)[12]
Berkeley	5,900	690	255	860	172,000	170	51,000
Dublin	4,100	480	177	590	118,000	120	36,000
Hayward	4,800	560	207	700	140,000	140	42,000
Palo Alto	2,900	340	125	420	84,000	90	27,000
San Jose	2,400	280	103	350	70,000	70	21,000

Table 2 - Santa Clara County:

Rain Gauge[3]	Required Demand (gal/day/IA)[4]	Residential		Office/Retail[5]		Schools[6]	
		No. of residents per IA[7]	Dwelling Units per IA[8]	Employees per IA[9]	Interior Floor Area (sq.ft./IA)[10]	Employees[11] per IA	Interior Floor Area (sq.ft./IA)[12]
Morgan Hill	6,500	760	260	940	188,000	190	57,000
Palo Alto	2,900	340	116	420	84,000	90	27,000
San Jose	2,400	280	96	350	70,000	70	21,000

Table 3 – San Mateo County:

Rain Gauge[3]	Required Demand (gal/day/IA)[4]	Residential		Office/Retail[5]		Schools[6]	
		No. of residents per IA[7]	Dwelling Units per IA[8]	Employees per IA[9]	Interior Floor Area (sq.ft./IA)[10]	Employees[11] per IA	Interior Floor Area (sq.ft./IA)[12]
Palo Alto	2,900	340	124	420	84,000	90	27,000
San Francisco	4,600	530	193	670	134,000	140	42,000
SF Oceanside	4,300	500	182	620	124,000	130	39,000

Table 4 – Contra Costa County:

Rain Gauge[3]	Required Demand (gal/day/IA)[4]	Residential		Office/Retail[5]		Schools[6]	
		No. of residents per IA[7]	Dwelling Units per IA[8]	Employees per IA[9]	Interior Floor Area (sq.ft./IA)[10]	Employees[11] per IA	Interior Floor Area (sq.ft./IA)[12]
Berkeley	5,900	690	254	860	172,000	170	51,000
Brentwood	4,200	490	180	610	122,000	120	36,000
Dublin	4,100	480	176	590	118,000	120	36,000
Martinez	5,900	690	254	860	172,000	170	51,000

Table 5 – Solano County:

Rain Gauge[3]	Required Demand (gal/day/IA)[4]	Residential		Office/Retail[5]		Schools[6]	
		No. of residents per IA[7]	Dwelling Units per IA[8]	Employees per IA[9]	Interior Floor Area (sq.ft./IA)[10]	Employees[11] per IA	Interior Floor Area (sq.ft./IA)[12]
Lake Solano	9,000	1,050	362	1,300	260,000	270	81,000
Martinez	5,900	690	238	860	172,000	170	51,000

Notes:

1. Demand thresholds obtained from the "Harvest and Use, Infiltration and Evapotranspiration Feasibility/Infeasibility Criteria Report" (LID Feasibility Report) submitted to the Regional Water Board on May 1, 2011.
2. Toilet flushing demands assume use of low flow toilets per the California Green Building Code.
3. See Attachment 3 to identify the rain gauge that corresponds to the project site.
4. Required demand per acre of impervious area to achieve 80% capture of the C.3.d runoff volume with the maximum allowable drawdown time for cistern of 50,000 gallons or less, from Table 9 of the LID Feasibility Report.
5. "Office/Retail" includes the following land uses: office or public buildings, hospitals, health care facilities, retail or wholesale stores, and congregate residences.
6. "Schools" includes day care, elementary and secondary schools, colleges, universities, and adult centers.
7. Residential toilet flushing demand identified in Table 10 of the LID Feasibility Report.
8. Residential toilet flushing demand divided by the countywide average number of persons per household (US Census data reported on www.abag.org), as follows: Alameda County: 2.71 persons per household; Santa Clara County: 2.92; San Mateo County: 2.74; Contra Costa County: 2.72; Solano County: 2.90.
9. Office/retail employee toilet flushing demand identified in Table 10 of the LID Feasibility Report.
10. Interior floor area required for rainwater harvest and use feasibility per acre of impervious area is based on the number of employees in Column 5 multiplied by an occupant load factor of 200 square feet per employee (reference: 2010 California Plumbing Code, Chapter 4, Plumbing Fixtures and Fitting Fixtures, Table A, page 62.)
11. School employee toilet flushing demand identified in Table 10 of the LID Feasibility Report. Each school employee represents 1 employee and 5 "visitors" (students and others).
12. Interior floor area required for rainwater harvest and use feasibility per acre of impervious area is based on the number of employees in Column 7 multiplied by 6 to account for visitors, then multiplied by an occupant load factor of 50 square feet per employee (reference: 2010 California Plumbing Code).

Appendix C

Special Projects Worksheet

Special Projects Worksheet

Project Name: The Edge

Project Address: 737 Montague Expressway, Milpitas, CA 95035

Applicant/Developer Name: SCS Development Company

1. "Special Project" Determination:

Special Project Category "A"

Does the project have ALL of the following characteristics?

- ☐ Located in a municipality's designated central business district, downtown core area or downtown core zoning district, neighborhood business district or comparable pedestrian-oriented commercial district, or historic preservation site and/or district[1];
- ☐ Creates and/or replaces 0.5 acres or less of impervious surface;
- ☐ Includes no surface parking, except for incidental parking for emergency vehicle access, ADA access, and passenger or freight loading zones;
- ☐ Has at least 85% coverage of the entire site by permanent structures. The remaining 15% portion of the site may be used for safety access, parking structure entrances, trash and recycling service, utility access, pedestrian connections, public uses, landscaping and stormwater treatment.

☒ No (continue) ☐ Yes – complete Section 2 of the Special Project Worksheet

Special Project Category "B"

Does the project have ALL of the following characteristics?

- ☐ Located in a municipality's designated central business district, downtown core area or downtown core zoning district, neighborhood business district or comparable pedestrian-oriented commercial district, or historic preservation site and/or district[1];
- ☐ Creates and/or replaces an area of impervious surface that is greater than 0.5 acres, and no more than 2.0 acres;
- ☐ Includes no surface parking, except for incidental parking for emergency access, ADA access, and passenger or freight loading zones;
- ☐ Has at least 85% coverage of the entire site by permanent structures. The remaining 15% portion of the site may be used for safety access, parking structure entrances, trash and recycling service, utility access, pedestrian connections, public uses, landscaping and stormwater treatment;
- ☐ Minimum density of either 50 dwelling units per acre (for residential projects) or a Floor Area Ratio (FAR) of 2:1 (for commercial or mixed use projects)

☒ No (continue) ☐ Yes – complete Section 2 of the Special Project Worksheet

Special Project Category "C"

Does the project have ALL of the following characteristics?

- ☐ At least 50% of the project area is within 1/2 mile of an existing or planned transit hub[2] or 100% within a planned Priority Development Area[3];
- ☐ The project is characterized as a non-auto-related use[4]; and
- ☐ Minimum density of either 25 dwelling units per acre (for residential projects) or a Floor Area Ratio (FAR) of 2:1 (for commercial or mixed use projects)

☒ No ☐ Yes – complete Section 2 of the Special Project Worksheet

*Unit Density = 381-DU/5.25-AC = 72.6-DU/AC; FAR = 545,900-sf/228,400-sf = 2.4:1 (includes parking structure)

[1] And built as part of a municipality's stated objective to preserve/enhance a pedestrian-oriented type of urban design.

[2] "Transit hub" is defined as a rail, light rail, or commuter rail station, ferry terminal, or bus transfer station served by three or more bus routes. (A bus stop with no supporting services does not qualify.)

[3] A "planned Priority Development Area" is an infill development area formally designated by the Association of Bay Area Government's / Metropolitan Transportation Commission's FOCUS regional planning program.

[4] Category C specifically excludes stand-alone surface parking lots; car dealerships; auto and truck rental facilities with onsite surface storage; fast-food restaurants, banks or pharmacies with drive-through lanes; gas stations; car washes; auto repair and service facilities; or other auto-related project unrelated to the concept of transit oriented development.

2. LID Treatment Reduction Credit Calculation:

Category	Impervious Area Created/Replaced (acres)	Site Coverage (%)	Project Density or FAR	Density/Criteria	Allowable Credit (%)	Applied Credit (%)
A			N.A.	N.A.	100%	
B				Res ≥ 50 DU/ac or FAR ≥ 2:1	50%	
				Res ≥ 75 DU/ac or FAR ≥ 3:1	75%	
				Res ≥ 100 DU/ac or FAR ≥ 4:1	100%	
C	187,500-sf (4.30-acre)	81%		**Location credit (select one)[5]:**		
			< 1/4 mile of planned BART Station	Within ¼ mile of transit hub	50%	
				Within ½ mile of transit hub	25%	
				Within a planned PDA	25%	
			72.6 DU/AC	**Density credit (select one):**		
				Res ≥ 30 DU/ac or FAR ≥ 2:1	10%	
				Res ≥ 60 DU/ac or FAR ≥ 4:1	20%	
				Res ≥ 100 DU/ac or FAR ≥ 6:1	30%	
			35,100-sf = ±15%	**Parking credit (select one):**		
				≥ 10% at-grade surface parking[6]	10%	
				No surface parking	20%	
				TOTAL TOD CREDIT =		0

[5] To qualify for the location credit, at least 50% of the project's site must be located within the ¼ mile or ½ mile radius of an existing or planned transit hub, as defined on page 1, footnote 2. A planned transit hub is a station on the MTC's Regional Transit Expansion Program list, per MTC's Resolution 3434 (revised April 2006), which is a regional priority funding plan for future transit stations in the San Francisco Bay Area. To qualify for the PDA location credit, 100% of the project site must be located within a PDA, as defined on page 1, footnote 3.

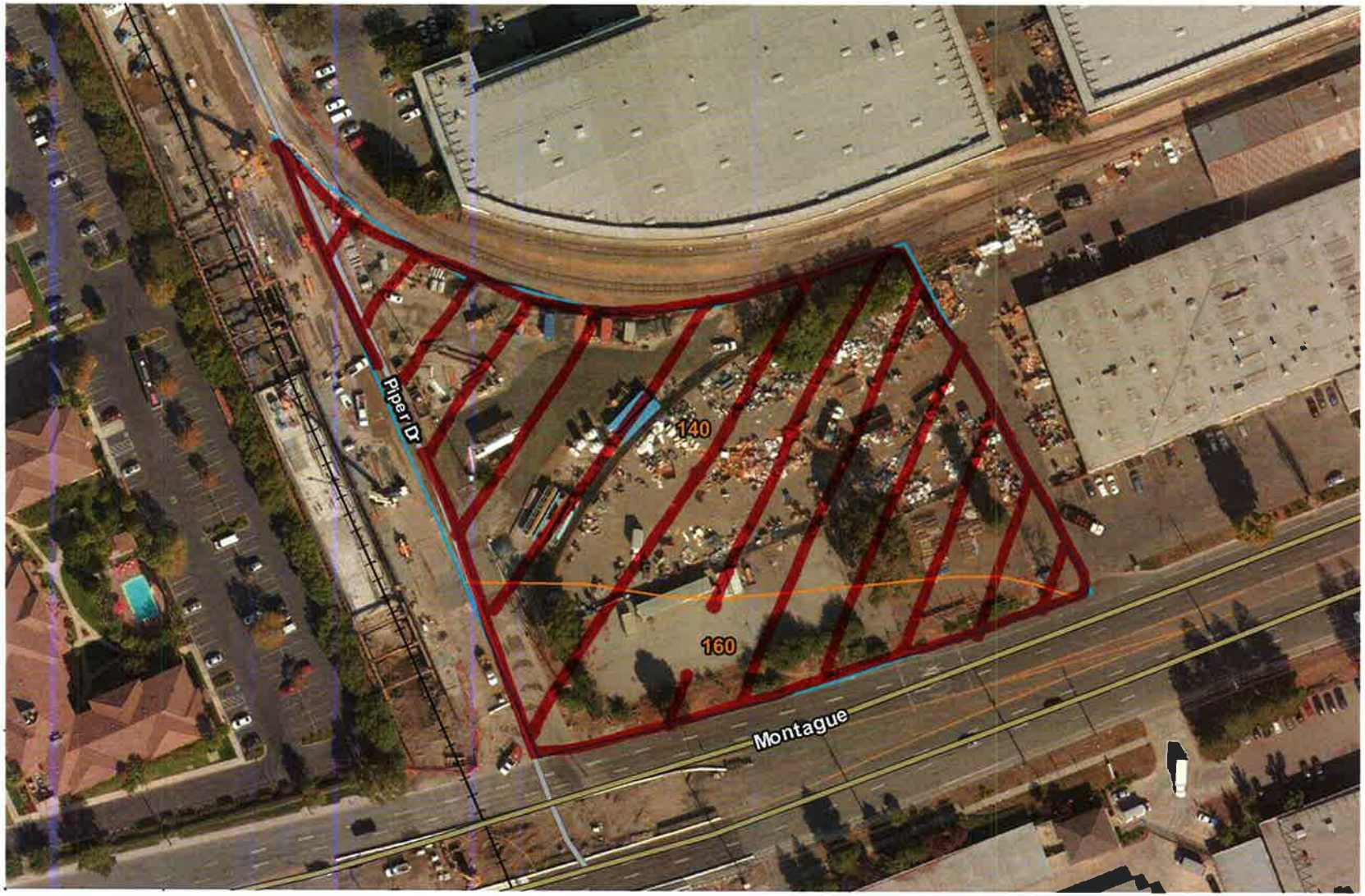
[6] The at-grade surface parking must be treated with LID treatment measures.

Appendix D

Soil Properties

Soil Map—Santa Clara Area, California, Western Part
(The Edge)

121° 53' 34" W
121° 53' 20" W
37° 24' 46" N
37° 24' 39" N



Map Scale: 1:1,500 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 20 40 80 120

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84

Soil Classification

Sheet 1 of 2

Map Unit Legend

Santa Clara Area, California, Western Part (CA641)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
140	Urban land-Flaskan complex, 0 to 2 percent slopes	2.8	76.5%
160	Urbanland-Clear Lake complex, 0 to 2 percent slopes	0.8	23.5%
Totals for Area of Interest		**3.6**	**100.0%**

Soil Classification

Sheet 2 of 2

Appendix E

MRP Calculations Worksheet

Section II. Sizing for Volume-Based Treatment Measures, continued

Section II.B. — Sizing Volume-Based Treatment Measures based on the Adapted CASQA Stormwater BMP Handbook Approach

The equation that will be used to size the BMP is:

*Calculation for area 1.

BMP Volume = (Correction Factor) × (Unit Storage) × (Drainage Area to the BMP)

Step 1. Determine the drainage area for the BMP, A = 0.48 acres

Step 2. Determine percent imperviousness of the drainage area:

a. Estimate the amount of impervious surface (rooftops, hardscape, streets, and sidewalks, etc.) in the area draining to the BMP: 0.42 acres

b. % impervious area=(amount of impervious area/drainage area for the BMP) × 100
% impervious area= **(Step 2.a/Step 1)** × 100
% impervious area= 88 %

Step 3. Find the mean annual precipitation at the site (MAP_{site}). To do so, estimate where the site is on Figure B-1 and estimate the mean annual precipitation in inches from the rain line (isopleth) nearest to the project site.[6] Interpolate between isopleths if necessary.

MAP_{site} = 14.5 inches

Step 4. Identify the reference rain gage closest to the project site from Table B-2b and record the MAP_{gage}:

MAP_{gage} = 13.9 inches

Table B-2b: Precipitation Data for Three Reference Gages

Reference Rain Gages	Mean Annual Precipitation (MAP_{gage}) (in)
San Jose Airport	13.9
Palo Alto	13.7
Morgan Hill	19.5

[6] Check with the local municipality to determine if more detailed maps are available for locating the site and estimating MAP.

Section II. Sizing for Volume-Based Treatment Measures, continued

Section II.B. —Adapted CASQA Stormwater BMP Handbook Approach (continued)

Step 5 Determine the rain gage correction factor for the precipitation at the site using the information from **Step 3** and **Step 4**.

Correction Factor = MAP_{site} (**Step 3**)/MAP_{gage} (**Step 4**)

Correction Factor = 1.04

Step 6. Identify the representative soil type for the BMP drainage area.

a) Identify from Figure B-1 or from site soils data, the soil type that is representative of the pervious portion of the project shown here in order of increasing infiltration capability:

X Clay (D) ____ Sandy Clay (D) ____ Clay Loam (D)

____ Silt Loam/Loam (B) ____ Not Applicable (100% Impervious)

b) Does the site planning allow for protection of natural areas and associated vegetation and soils so that the soils outside the building footprint are not graded/compacted? N (Y/N)

If your answer is no, and the soil will be compacted during site preparation and grading, the soil's infiltration ability will be decreased. Modify your answer to a soil with a lower infiltration rate (e.g., Silt Loam to Clay Loam or Clay).

Modified soil type:

7. Determine the average slope for the drainage area for the BMP: 0.5 %

8. Determine the unit basin storage volume from sizing curves.

a) Slope ≤ 1%

Use the figure entitled "Unit Basin Volume for 80% Capture, 1% Slope" corresponding to the nearest rain gage: Figure B-2, B-3, or B-4 for San Jose, Palo Alto, or Morgan Hill, respectively. Find the percent imperviousness of the drainage area (see answer to **Step 2**, above) on the x-axis. From there, find the line corresponding to the soil type (from **Step 6**), and obtain the unit basin storage on the y-axis.

Unit Basin Storage for 1% slope ($UBS_{1\%}$) = 0.54 (inches)

b) Slope ≥ 15%

Use the figure entitled "Unit Basin Volume for 80% Capture, 15% Slope" corresponding to the nearest rain gage: Figure B-5, B-6, or B-7 for San Jose, Palo Alto, or Morgan Hill, respectively. Find the percent imperviousness of the drainage area (see answer to **Step 2**, above) on the x-axis. From there, find the line corresponding to the soil type (from **Step 6**), and obtain the unit basin storage on the y-axis.

Unit Basin Storage for 15% slope ($UBS_{15\%}$) = 0.57 (inches)

Section II. Sizing for Volume-Based Treatment Measures, continued

Section II.B. —Adapted CASQA Stormwater BMP Handbook Approach (continued)

c) Slope > 1% and < 15%

Find the unit basin volumes for 1% and 15% using the techniques in **Steps 8.a** and **8.b** and interpolate by applying a slope correction factor per the following formula:

$UBS_x = UBS_{1\%} + (UBS_{15\%} - UBS_{1\%}) \times (X\%-1\%) / (15\% -1\%)$
$= (\textbf{Step 8a}) + (\textbf{Step 8b- Step 8a}) \times (X\%-1\%)/(15\%-1\%)$
$=0.54+(0.57-0.54)x(0.005-0.01)/(0.15-0.01)=0.54$
Where UBS_x = Unit Basin Storage volume for drainage area of intermediate slope, X %

Unit Basin Storage volume (UBS_x)= 0.541 (inches)
(corrected for slope of site)

9. Determine the BMP Design Volume, using the following equation:

Design Volume = Rain Gage Correction Factor × Unit Basin Storage Volume × Drainage Area

Design Volume = (**Step 5**) × (**Step 8**) × (**Step 1**) × 1 foot/12 inch $=1.04x0.541x0.52x(1/12)=0.024$

Design Volume =0.024 acre-feet

Appendix F

BMP Sizing Calculations

Project Name: The Edge
Project Location: Milpitas, CA
Date: April 2016

Project Information

Area =	223,815	ft^2	*Total project area*
Ex Impervious Area =	188,210	ft^2	*Total existing project impervious area*
	84%		*Percent existing impervious area*
Ex Imperv Area To Remain =	0	ft^2	*Total existing impervious surface to remain*
Replaced Imperv Area =	188,210	ft^2	*Total existing impervious surface to be replaced as part of project*
New Imperv Area =	2,090	ft^2	*Total new impervious surface to be installed as part of project*
Total Impervious Area =	190,300	ft^2	*Total project impervious area*
	85%		*Percent impervious area*

Site Design Requirements

1. Project creates or replaces greater than 10,000-sf of impervious surface.
   Project shall implement C.3 source control, site design, and treatment requirements
2. Post-project impervious surface is less than pre-project impervious surface.
   Hydromodification and flood control management is not required.

Rainfall Design Information

Reference Rain Guage =	San Jose Airport		
MAP_{guage} =	13.9	in	*Reference Rain Guage closest to the project site*
MAP_{site} =	14.5	in	*Mean Annual Precipitation at project site*
CF =	1.04		*Rain Guage correction factor*
$P_{6\ gauge}$ =	0.512	in	*Mean storm event precipitation at reference rain gauge*
$I_{85\ gauge}$ =	0.087	in/hr	*85th percentile hourly rainfall intensity at reference rain gauge*
$P_{6\ site}$ =	0.54	in	*Project mean storm event precipitation for volume based design*
$I_{WQ\ site}$ =	0.19	in/hr	*Two times the project 85th percentile hourly rainfall intensity for flow based design*

Soil Type Design Information

Groundwater Depth =	0-10	ft	*Based on SCVWD seasonal high groundwater maps*
Site HSG =	D		*NRCS Hydrologic Soil Group Classification*
Infiltration Rate =	0.06	in/hr	*NRCS documented low hydraunlic conductitivity*
Safety Factor =	1		
Design Infiltration Rate* =	5.0	in/hr	

**Infiltration is deemed infeasible due to slow infiltrating soils and high expansion potential. Site shall implement biotreatment measures such as bioretention basins with a filtration rate of 5-10 in/hr. A design infiltration rate of 5.0 in/hr will be used for design.*

Project Name: The Edge
Project Location: Milpitas, CA
Date: April 2016

BMP Volume Calculations - CASQA BMP Handbook Method

Drainage Area ID	Area (SF)	Imperv Area (SF)	% Imperv	Soil Type	Average Slope (%)	Unit Basin Storage (in) 1%	Drainage Area Specific	Design WQ_V (ft^3)
TA1	11,860	9,730	82%	Clay (D)	1%	0.52	0.54	536
TA2	41,060	35,790	87%	Clay (D)	1%	0.54	0.56	1,927
TA3	10,415	8,195	79%	Clay (D)	1%	0.50	0.52	453
TA4	15,180	12,655	83%	Clay (D)	1%	0.52	0.54	686
TA5	5,600	4,350	78%	Clay (D)	1%	0.50	0.52	243
TA6	10,900	9,870	91%	Clay (D)	1%	0.54	0.56	512
TA7	1,610	735	46%	Clay (D)	1%	0.40	0.42	56
TA8	1,670	795	48%	Clay (D)	1%	0.50	0.52	73
TA9	2,460	1,620	66%	Clay (D)	1%	0.45	0.47	96
TA10	2,900	2,060	71%	Clay (D)	1%	0.46	0.48	116
TA11	16,090	14,400	89%	Clay (D)	1%	0.54	0.56	755
TA12	24,890	23,550	95%	Clay (D)	1%	0.55	0.57	1,190
TA13	5,940	5,030	85%	Clay (D)	1%	0.54	0.56	279
TA14	7,640	6,490	85%	Clay (D)	1%	0.54	0.56	359
TA15	6,450	5,800	90%	Clay (D)	1%	0.54	0.56	303
TA16	2,810	2,260	80%	Clay (D)	1%	0.50	0.52	122
TA17	8,650	6,750	78%	Clay (D)	1%	0.50	0.52	376
TA18	12,860	12,000	93%	Clay (D)	1%	0.55	0.57	615
TA19	5,485	4,885	89%	Clay (D)	1%	0.54	0.56	257
TA20	5,540	3,760	68%	Clay (D)	1%	0.46	0.48	222
TA21	660	400	61%	Clay (D)	1%	0.44	0.46	25
TA22	725	615	85%	Clay (D)	1%	0.52	0.54	33
TA23	640	460	72%	Clay (D)	1%	0.46	0.48	26
TA24	1,640	1,440	88%	Clay (D)	1%	0.54	0.56	77
TA25	940	810	86%	Clay (D)	1%	0.51	0.53	42
TA26	3,005	2,815	94%	Clay (D)	1%	0.55	0.57	144
TA27	495	475	96%	Clay (D)	1%	0.56	0.58	24
TA28	4,000	2,850	71%	Clay (D)	1%	0.46	0.48	160
TA29	8,090	0	0%	Clay (D)	1%	0.40	0.42	281
TA30	1,010	765	76%	Clay (D)	1%	0.46	0.48	40
POOL	2,600	2,600						
Total	***223,815***	***183,955***	***82%***					***4,698***

SCM Description	Rain Event Duration @ I_{WQ} (hr)	BMP Surface Area (ft^2)	WQ_V Filterd During T_D (ft^3)	WQ_V Remaing Volume (ft^3)	Surface Ponding Depth (in)	Required BMP Area (ft^2)	Drawdown Time (hr)	BMP Area Required[1] (ft^2)	BMP Area Provided (ft^2)	BMP Description
Bioretention	2.71	340	384	152	6	304	4	304	340	TA1
Bioretention	2.82	1,170	1,373	554	6	1,109	4	1,109	1,170	TA2
Bioretention	2.61	340	369	83	6	166	3	166	340	TA3
Bioretention	2.71	400	452	234	7	401	4	401	400	TA4
Bioretention	2.61	190	206	37	6	74	3	74	190	TA5
Bioretention	2.82	360	422	89	6	178	3	178	360	TA6
Bioretention	2.09	55	48	8	6	16	2	16	55	TA7
Bioretention	2.61	55	60	13	6	26	3	26	55	TA8
Bioretention	2.35	80	78	18	6	36	3	36	80	TA9
Bioretention	2.40	115	115	1	6	2	2	2	115	TA10
Bioretention	2.82	530	622	133	6	267	3	267	530	TA11
Bioretention	2.87	690	825	365	7	626	4	626	690	TA12
Bioretention	2.82	170	200	79	6	159	4	159	170	TA13
Bioretention	2.82	250	293	65	6	131	3	131	250	TA14
Bioretention	2.82	240	282	21	6	42	3	42	240	TA15
Bioretention	2.61	100	109	13	6	27	3	27	100	TA16
Bioretention	2.61	300	326	50	6	100	3	100	300	TA17
Bioretention	2.87	330	394	220	9	294	4	294	330	TA18
Bioretention	2.82	140	164	93	9	124	4	124	140	TA19
Bioretention	2.40	115	115	107	12	107	5	107	115	TA20
Bioretention	2.29	20	19	6	6	12	3	12	20	TA21
Bioretention	2.71	25	28	5	6	9	3	9	25	TA22
Bioretention	2.40	20	20	6	6	11	3	11	20	TA23
Bioretention	2.82	47	55	22	6	44	4	44	47	TA24
Bioretention	2.66	35	39	3	6	6	3	6	35	TA25
Bioretention	2.87	85	102	42	6	84	4	84	85	TA26
Bioretention	2.92	15	18	6	6	12	4	12	15	TA27
Bioretention	2.40	120	120	40	6	80	3	80	120	TA28
Bioretention	2.09	0	0	0	0	0	0	Self-Treating Area		
Bioretention	2.40	35	35	5	6	11	3	11	35	TA30
								Goes to sewer		
		3,105				***2,313***				

POOL: This project has a pool - see Appendix G Site Plan, which drains to the sanitary sewer system.

Notes:

1. Unit basin storage factors are based on Appendix B of the SCVURPPP C.3 Manual dated April 2013.
2. BMP sizing is based on Flow & Volume based method described in Chapter 5 and Appendix B of the SCVURPPP C.3 Manual dated April 2013.

Governing Equations:

$WQ_V = \frac{(CF)SA}{12}$ acre-ft

CF = *Rain gauge correction factor*
S = *Unit Basin Storage (in)*
A = *drainage area (ft^2)*
WQ_V = *Water quality design volume (ft^3)*

$T_{WQ} = \frac{S}{I_{WQ}}$

T_{WQ} = *Rain event duration (hr)*
I_{WQ} = *0.2 in/hr*

$WQ_{VF} = \frac{Area * T_{WQ} * I}{12}$

WQ_{VF} = *Water qaulity volume filtered during T_D (ft^3)*
T_{WQ} = *Rain event duration (hr)*
Area = *BMP surface area (ft^2)*
I = 5.0 *Design Infiltration Rate (in/hr)*

$\text{Required BMP Area} = \frac{WQ_V * 12}{D_P + D_{BSM} * R_{BSM} + D_G * R_G} \quad \frac{WQ_V * 12}{I * \text{Area}}$

Area = *BMP surface area (ft^2)* *Drawdown time (hr)*
D = *BMP Layer depth (in)* *BMP surface area (ft^2)*
R = *BMP Layer porosity (in)* 5.0 *Design Infiltration Rate (in/hr)*

SAN FRANCISCO SOUTH BAY

PALO ALTO

MOUNTAIN VIEW

LOS ALTOS

LOS ALTOS HILLS

SUNNYVALE

SANTA CLARA

MILPITAS

Project Site

SAN JOSE

CUPERTINO

CAMPBELL

SARATOGA

MONTE SERENO

LOS GATOS

MORGAN HILL

12 13 14 15 16 18 20 22 24 26 28 30 34 38

Figure B-1
Soil Texture and Mean Annual Precipitation Depths for the Santa Clara Basin

Legend

Soil Texture
(NRCS Hydrologic Soil Group)

- Clay (D)
- Sandy Clay (D)
- Clay Loam (D)
- Silt Loam (B)
- Loam (B)

- Street or Highway
- Stream
- Jurisdictional Boundary
- Rain Gage
- Mean Annual Precipitation Depths (Inches)

Data Source: Santa Clara Valley Water District
Revised March 2004

N

0 1 2 3 4 5 Miles

Santa Clara Valley
Urban Runoff
Pollution Prevention Program

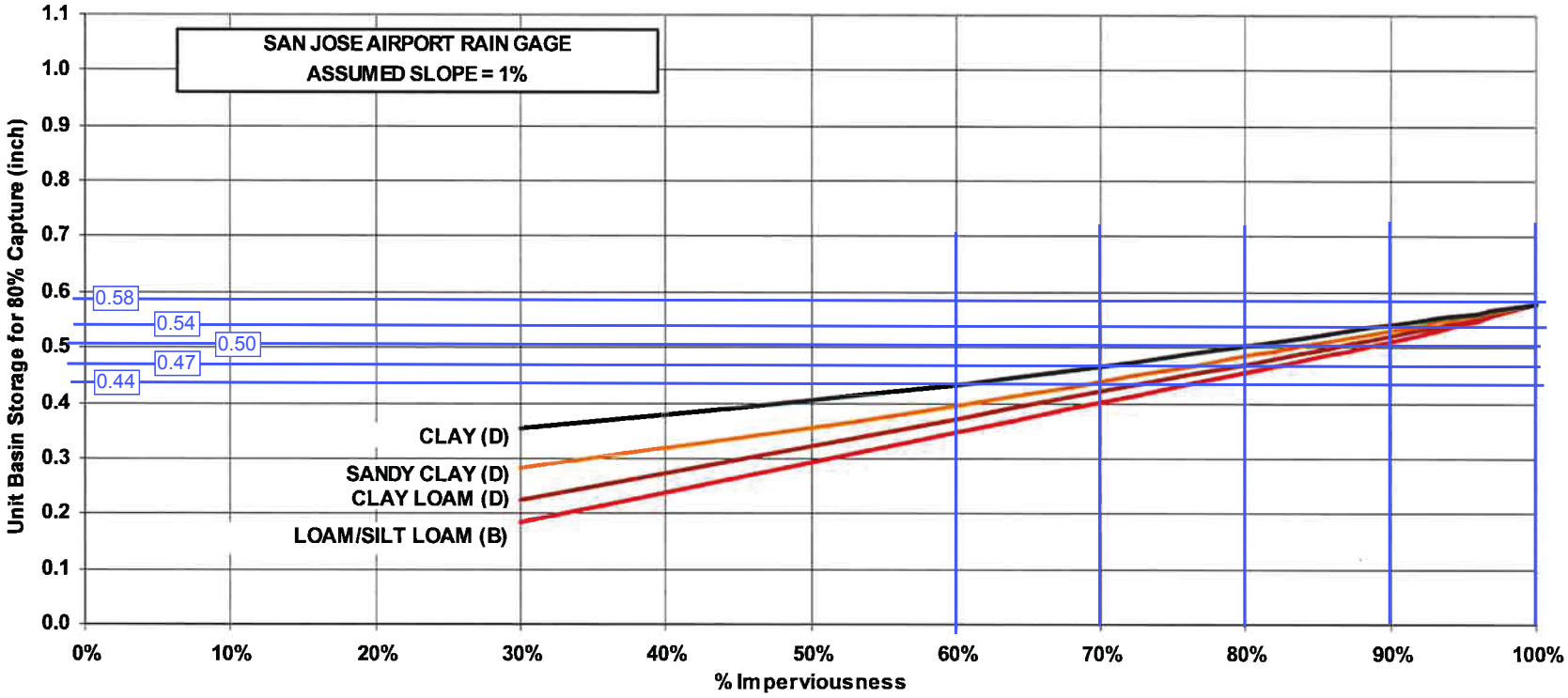


Figure B-2 Unit Basin Volume for 80% Capture - San Jose Airport Rain Gage

Appendix G

Site Plan

Stormwater Treatment Area Sizing Table

Drainage Area ID	Total Area (ft^2)	Impervious Area (ft^2)	Pervious Area (ft^2)	Percent Impervious (%)	Required BMP Area (ft^2)	Provided BMP Area (ft^2)
TA1	11,860	9,730	2,130	82%	304	340
TA2	41,060	35,790	5,270	87%	1,109	1,170
TA3	10,415	8,195	2,220	79%	166	340
TA4	15,180	12,655	2,525	83%	401	400
TA5	5,600	4,350	1,250	78%	74	190
TA6	10,900	9,870	1,030	91%	178	360
TA7	1,610	735	875	46%	16	55
TA8	1,670	795	875	48%	26	55
TA9	2,460	1,620	840	66%	36	80
TA10	2,900	2,060	840	71%	2	115
TA11	16,090	14,400	1,690	89%	267	530
TA12	24,890	23,550	1,340	95%	626	690
TA13	5,940	5,030	910	85%	159	170
TA14	7,640	6,490	1,150	85%	131	250
TA15	6,450	5,800	650	90%	42	240
TA16	2,810	2,260	550	80%	27	100
TA17	8,650	6,750	1,900	78%	100	300
TA18	12,860	12,000	860	93%	294	330
TA19	5,485	4,885	600	89%	124	140
TA20	5,540	3,760	1,780	68%	107	115
TA21	660	400	260	61%	12	20
TA22	725	615	110	85%	9	25
TA23	640	460	180	72%	11	20
TA24	1,640	1,440	200	88%	44	47
TA25	940	810	130	86%	6	35
TA26	3,005	2,815	190	94%	84	85
TA27	495	475	20	96%	12	15
TA28	4,000	2,850	1,150	71%	80	120
TA29	8,090	0	8,090	0%	n/a	n/a
TA30	1,010	765	245	76%	11	35
POOL	2,600	2,600	0	100%	n/a	n/a

Note:
See Appendix F for complete BMP Sizing Calculations.

LEGEND

- BUILDING ROOF AREA
- BMP AREA
- CONCRETE
- POOL (GOES TO SEWER)
- DRAINAGE AREA
- (XX) DRAINAGE AREA NUMBER
- TA(X) BMP DESCRIPTION
- STORM DRAIN SYSTEM
- HP HIGH POINT
- LP LOW POINT
- CP CATCH POINT
- DRAINAGE FLOW LINES

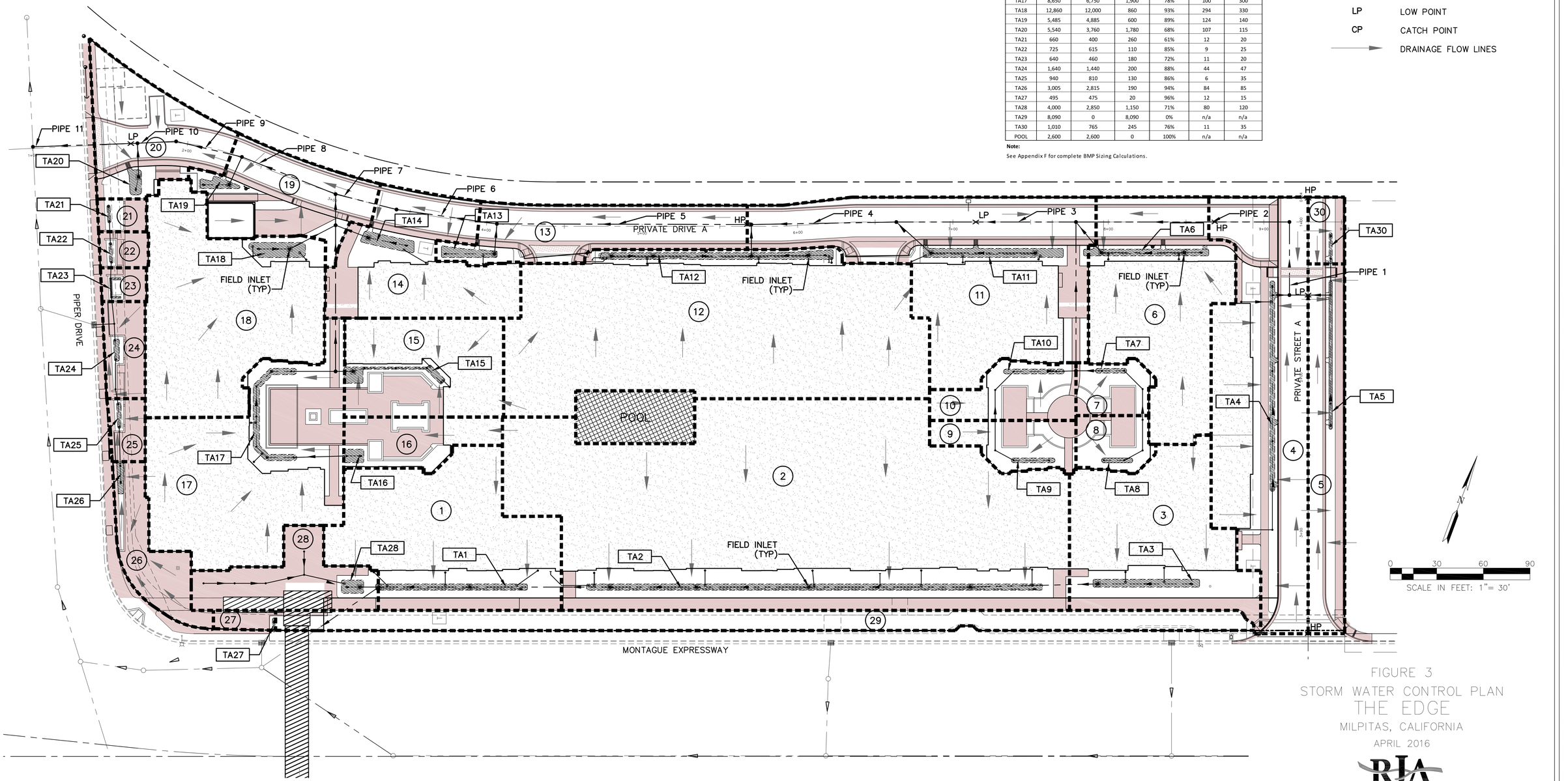


FIGURE 3
STORM WATER CONTROL PLAN
THE EDGE
MILPITAS, CALIFORNIA
APRIL 2016

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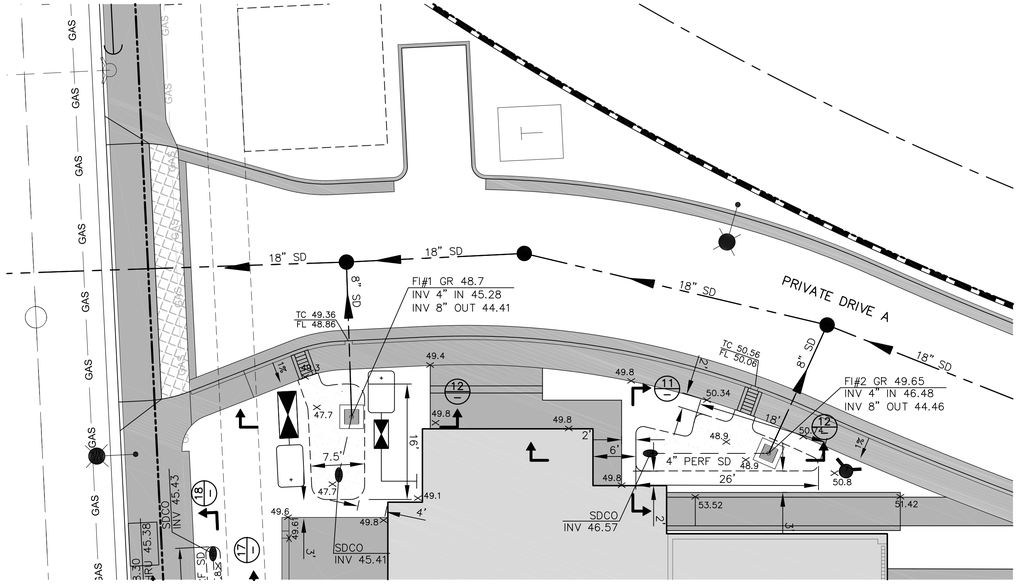
Appendix H

Treatment Measure Details

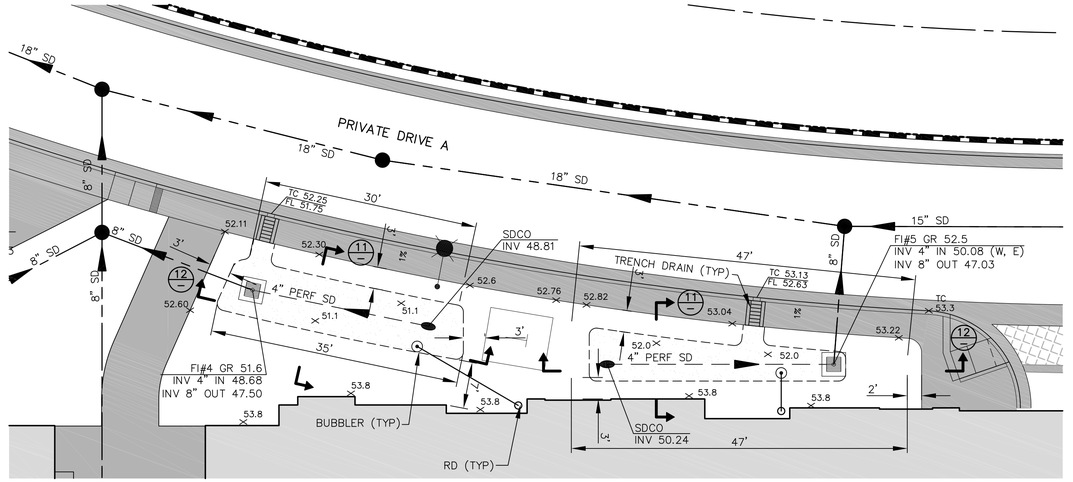


TA 20

TREATS DRAINAGE AREA 20
TREATMENT PROVIDED = 115 SF

TA 19

TREATS DRAINAGE AREA 19
TREATMENT PROVIDED = 140 SF

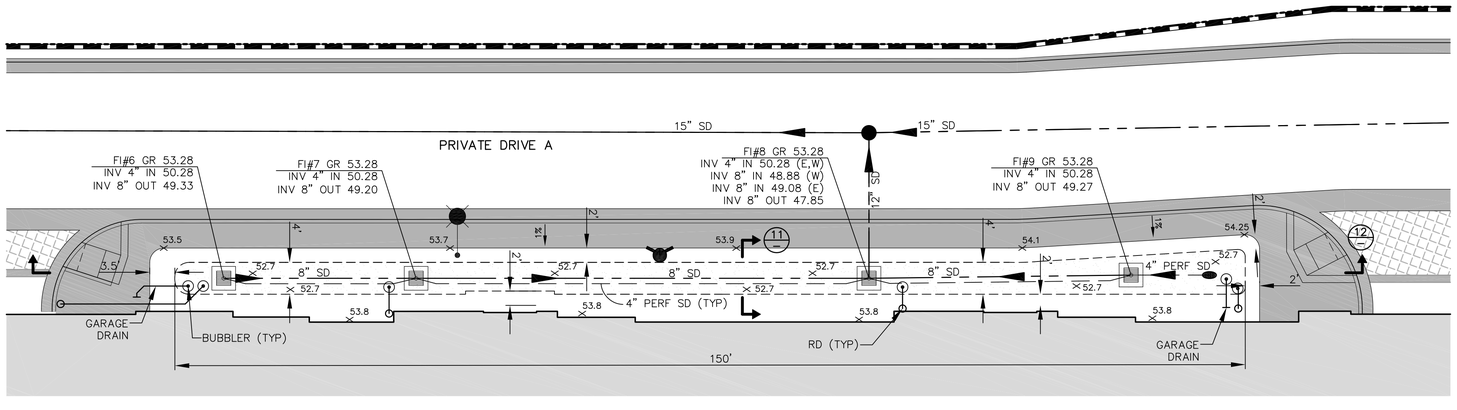


TA 14

TREATS DRAINAGE AREA 14
TREATMENT PROVIDED = 250 SF

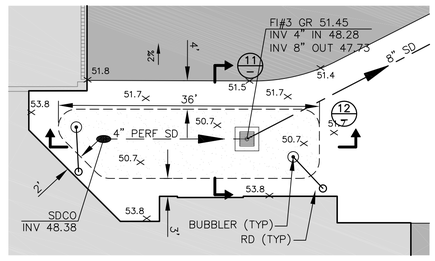
TA 13

TREATS DRAINAGE AREA 13
TREATMENT PROVIDED = 170 SF



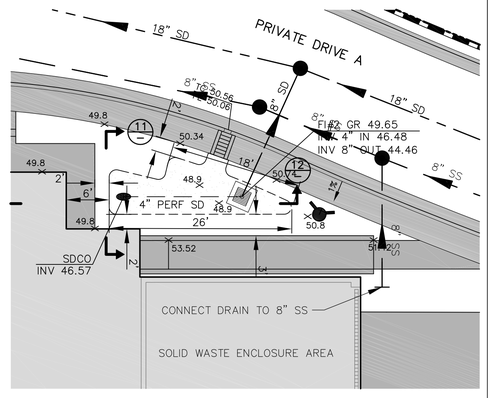
TA 12

TREATS DRAINAGE AREA 12
TREATMENT PROVIDED = 690 SF



TA 18

TREATS DRAINAGE AREA 18
TREATMENT PROVIDED = 330 SF



SOLID WASTE AREA

REFER TO APPENDIX H FIGURE 2 FOR DETAILS

N

0 10 20 30

SCALE IN FEET: 1"= 10'

FIGURE 1.1

BMP BLOWUPS

THE EDGE

MILPITAS, CALIFORNIA

APRIL 2015

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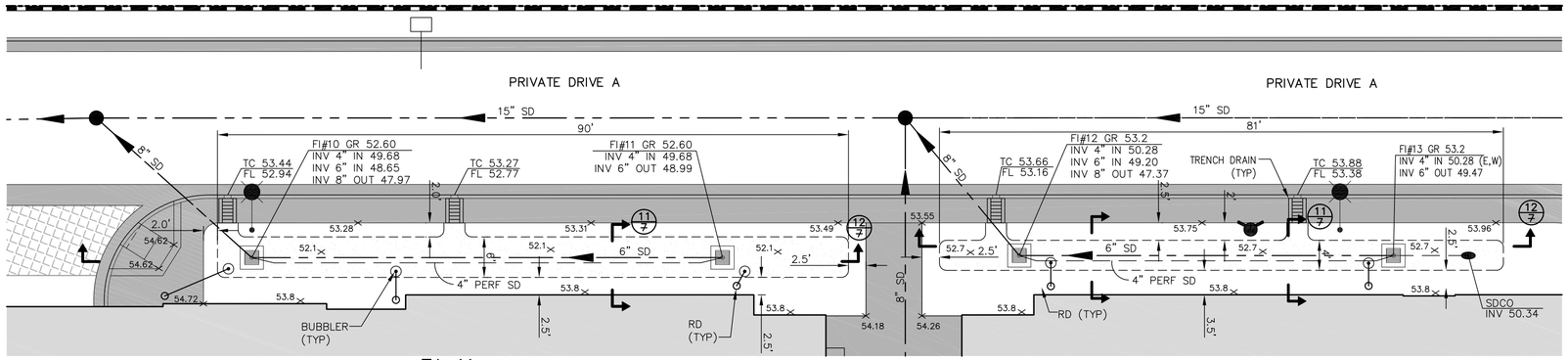
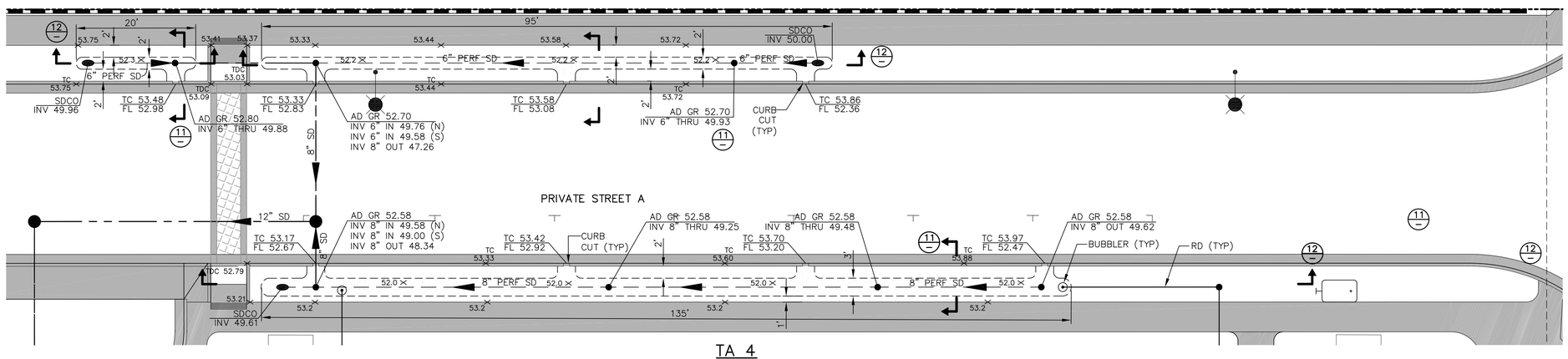


TA 11
TREATS DRAINAGE AREA 11
TREATMENT PROVIDED = 530 SF

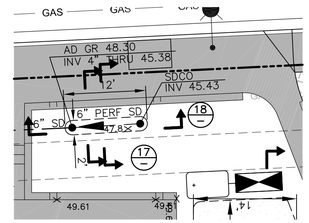
TA 6
TREATS DRAINAGE AREA 6
TREATMENT PROVIDED = 360 SF

TA 30
TREATS DRAINAGE AREA 30
TREATMENT PROVIDED = 35 SF

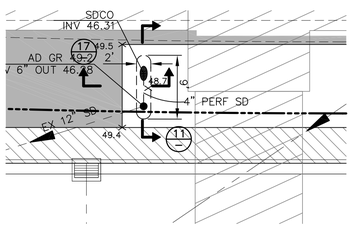
TA 5
TREATS DRAINAGE AREA 5
TREATMENT PROVIDED = 190 SF



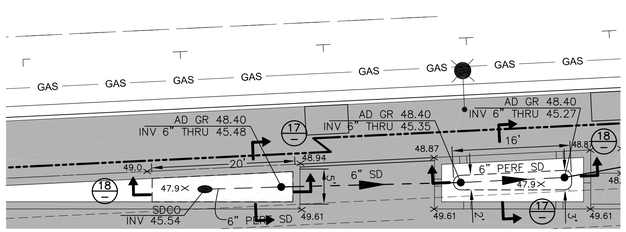
TA 4
TREATS DRAINAGE AREA 4
TREATMENT PROVIDED = 400 SF



TA 21
TREATS DRAINAGE AREA 21
TREATMENT PROVIDED = 20 SF

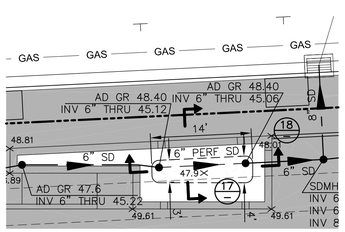


TA 27
TREATS DRAINAGE AREA 27
TREATMENT PROVIDED = 15 SF

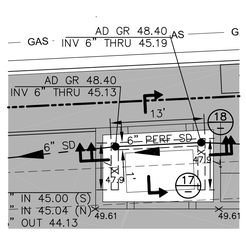


TA 26
TREATS DRAINAGE AREA 26
TREATMENT PROVIDED = 85 SF

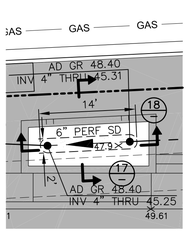
TA 25
TREATS DRAINAGE AREA 25
TREATMENT PROVIDED = 35 SF



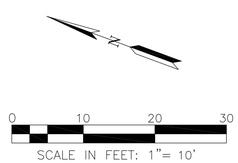
TA 24
TREATS DRAINAGE AREA 24
TREATMENT PROVIDED = 47 SF



TA 23
TREATS DRAINAGE AREA 23
TREATMENT PROVIDED = 20 SF



TA 22
TREATS DRAINAGE AREA 22
TREATMENT PROVIDED = 25 SF



REFER TO APPENDIX H FIGURE 2 FOR DETAILS

FIGURE 1.2

BMP BLOWUPS

THE EDGE

MILPITAS, CALIFORNIA

APRIL 2015

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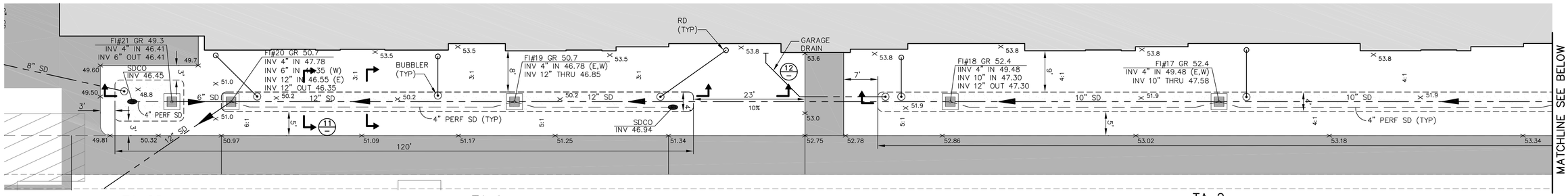
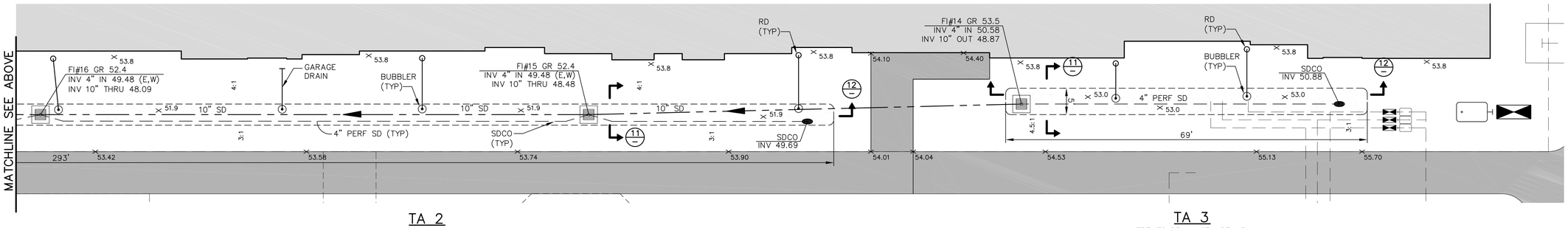


TA 28
TREATS DRAINAGE AREA 28
TREATMENT PROVIDED = 120 SF

TA 1
TREATS DRAINAGE AREA 1
TREATMENT PROVIDED = 340 SF

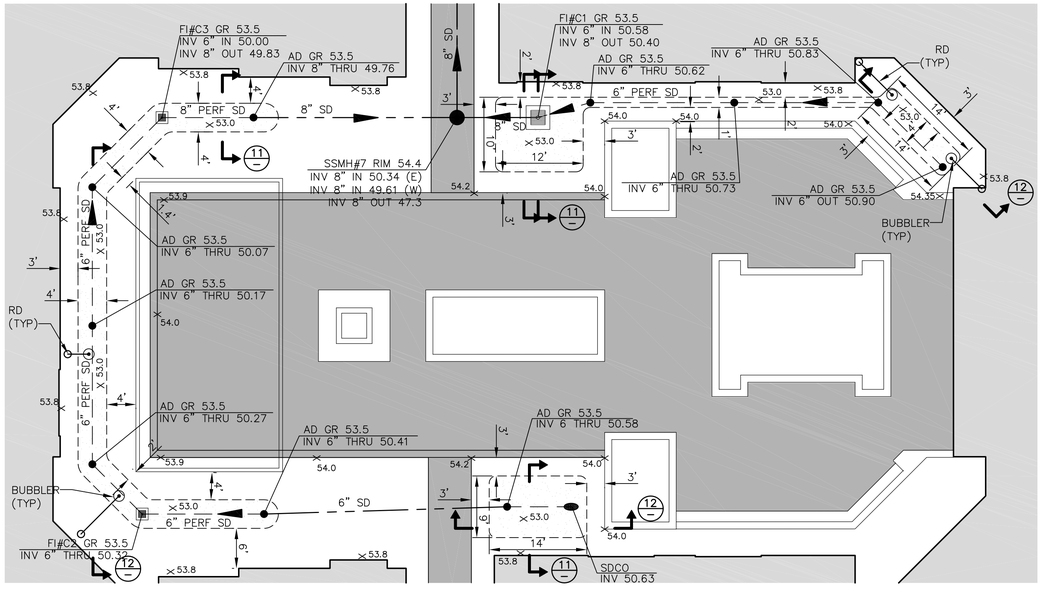
TA 2
TREATS DRAINAGE AREA 2
TREATMENT PROVIDED = 1170 SF



TA 2
TREATS DRAINAGE AREA 2
TREATMENT PROVIDED = 1170 SF

TA 3
TREATS DRAINAGE AREA 3
TREATMENT PROVIDED = 340 SF

TA 15
TREATS DRAINAGE AREA 15
TREATMENT PROVIDED = 240 SF

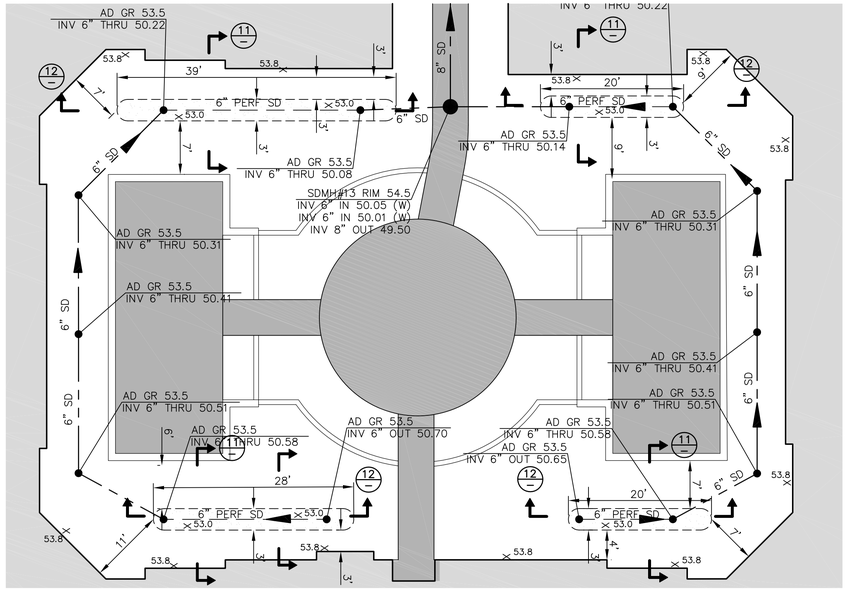


TA 17
TREATS DRAINAGE AREA 17
TREATMENT PROVIDED = 300 SF

TA 16
TREATS DRAINAGE AREA 16
TREATMENT PROVIDED = 100 SF

TA 10
TREATS DRAINAGE AREA 10
TREATMENT PROVIDED = 115 SF

TA 7
TREATS DRAINAGE AREA 7
TREATMENT PROVIDED = 55 SF



TA 9
TREATS DRAINAGE AREA 9
TREATMENT PROVIDED = 80 SF

TA 8
TREATS DRAINAGE AREA 8
TREATMENT PROVIDED = 55 SF

REFER TO APPENDIX H FIGURE 2 FOR DETAILS

N

0 10 20 30

SCALE IN FEET: 1"= 10'

FIGURE 1.3

BMP BLOWUPS
THE EDGE
MILPITAS, CALIFORNIA
APRIL 2015

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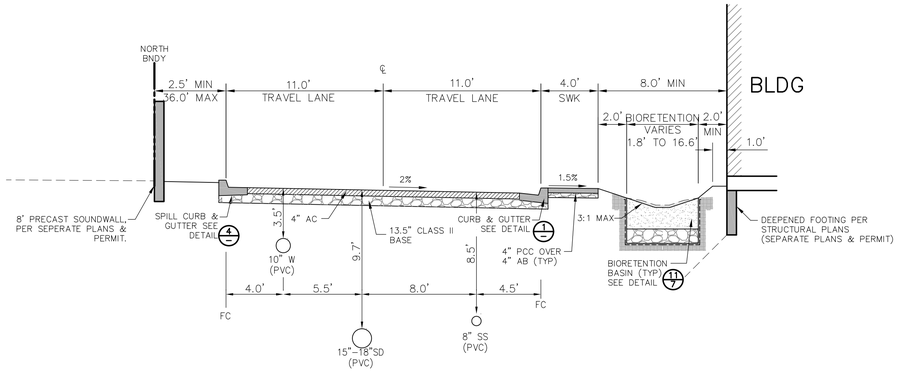
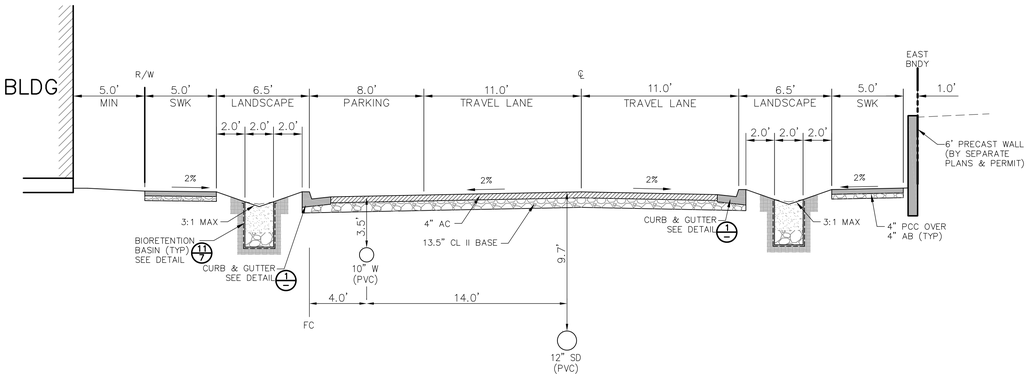
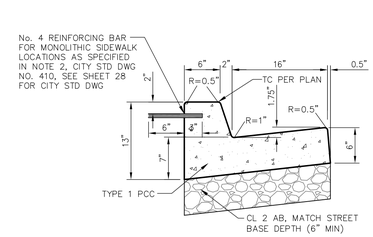


A/— PRIVATE DRIVE A
NO SCALE

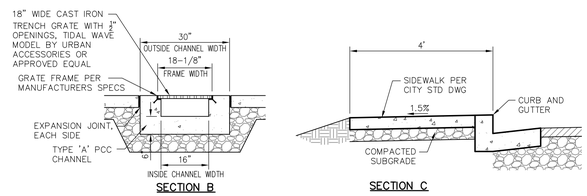


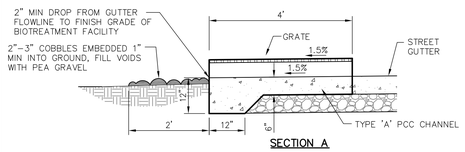
B/— PRIVATE STREET A
NO SCALE

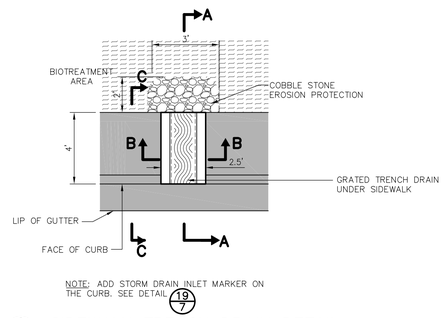


NOTE:
THIS DETAIL IS PROVIDED FOR INFORMATION ONLY. REFER TO CITY STD DWG NO. 410

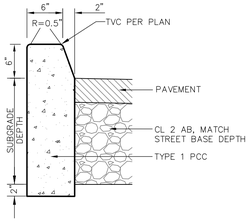
1/— CURB & GUTTER DETAIL
NO SCALE







6/— SIDEWALK TRENCH DRAIN DETAIL
NOT TO SCALE



2/— VERTICAL CURB DETAIL
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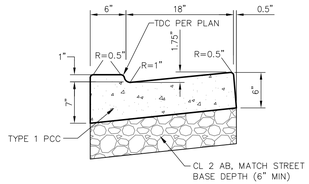
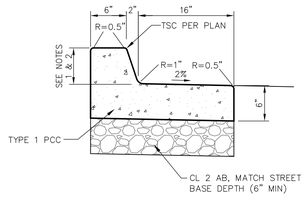
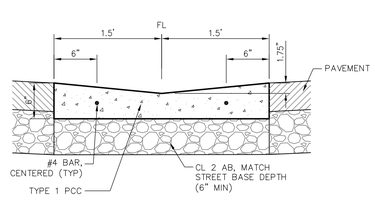


3/— DEPRESSED CURB & GUTTER DETAIL
NO SCALE



NOTE:
1. CURB HEIGHT IS 6" UNLESS OTHERWISE NOTED ON PLAN. ALTERNATIVE CURB HEIGHT WILL BE DENOTED BY PARENTHESIS, E.G. TSC 32.00(1.5")
2. CURB HEIGHT SHALL BE 0.5" HIGH AT PEDESTRIAN CROSSINGS WITH A 1:2 MAX BEVEL PER CBC SECTION 1133B.7.4.

4/— SPILL CURB & GUTTER DETAIL
NO SCALE



5/— VALLEY GUTTER DETAIL
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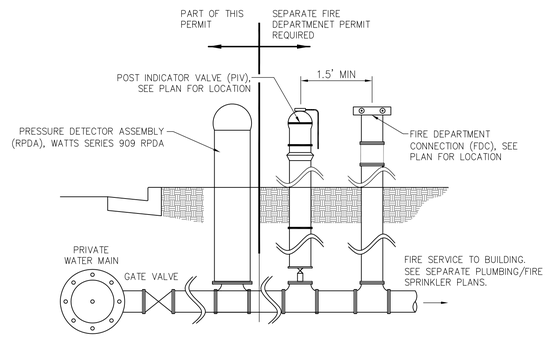

7/— PIV/FDC DETAIL
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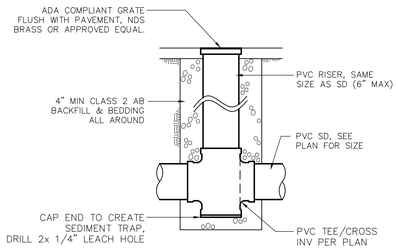

8/— PAVEMENT AREA DRAIN DETAIL
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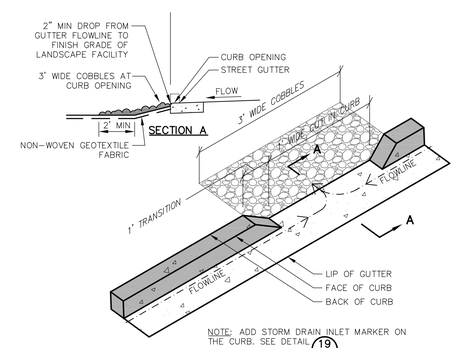


9/— CURB CUT DETAIL
NOT TO SCALE

FIGURE 2.1

STORM WATER CONTROL PLAN DETAILS

THE EDGE

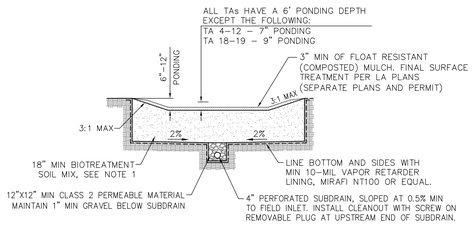
MILPITAS, CALIFORNIA

APRIL 2015

RUGGERI-JENSEN-AZAR
ENGINEERS ▪ PLANNERS ▪ SURVEYORS
8055 CAMINO ARROYO GILROY, CA 95020
PHONE: (408) 848-0300 FAX: (408) 848-0302

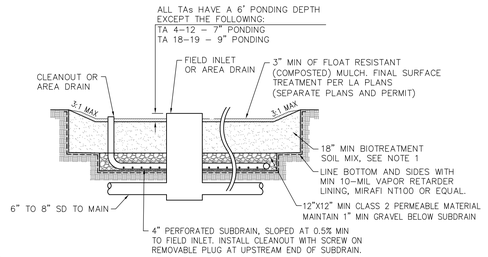
JOB NUMBER: 132003 SHEET 1 OF 2 SHEETS

PLOT DATE: April 5, 2016
FILE PATH: W:\Jobs 13\132003\Drawings\Final\Studies & Calculations\SWCP\Appendix H.Details.dwg



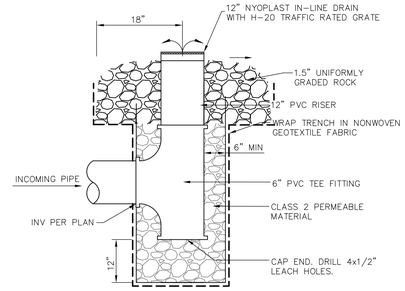
NOTES:
1. ENGINEERED TOP SOIL SHALL ADHERE TO THE SAN FRANCISCO REGIONAL WATER QUALITY CONTROL BOARD SPECIFICATIONS FOR BIORETENTION SOIL MIX AND CONTAIN THE FOLLOWING PROPERTIES: 5-10 IN/HR MIN INFILTRATION RATE, 60-70% CLEAN SAND, & 30-40% CERTIFIED COMPOST.
2. SEE LANDSCAPE DRAWINGS FOR BIOSWALE PLANTINGS AND IRRIGATION.

(11) BIORETENTION BASIN TYPICAL SECTION
NO SCALE

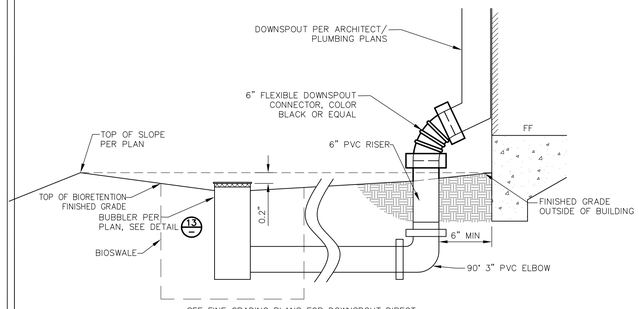


NOTES:
1. ENGINEERED TOP SOIL SHALL ADHERE TO THE SAN FRANCISCO REGIONAL WATER QUALITY CONTROL BOARD SPECIFICATIONS FOR BIORETENTION SOIL MIX AND CONTAIN THE FOLLOWING PROPERTIES: 5-10 IN/HR MIN INFILTRATION RATE, 60-70% CLEAN SAND, & 30-40% CERTIFIED COMPOST.
2. SEE LANDSCAPE DRAWINGS FOR BIOSWALE PLANTINGS AND IRRIGATION.

(12) BIORETENTION BASIN LONGITUDINAL SECTION
NO SCALE



(13) BIORETENTION BASIN BUBBLER DETAIL
NO SCALE



(14) DOWNSPOUT CONNECTION TO BUBBLER DETAIL
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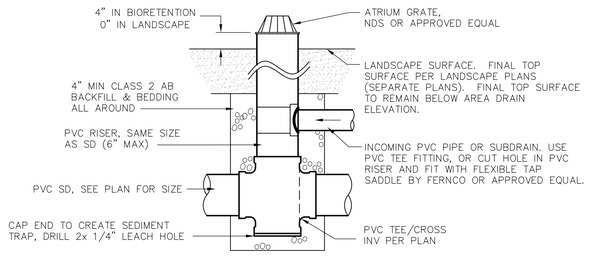
(SEE DETAIL 13, THIS SHEET)



(15) LANDSCAPE AREA DRAIN DETAIL
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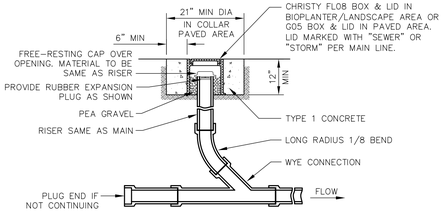

(16) CLEANOUT DETAIL
NO SCALE

FIGURE 2.2

STORM WATER CONTROL PLAN DETAILS
THE EDGE
MILPITAS, CALIFORNIA
APRIL 2015

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PHONE: (408) 848-0300 FAX: (408) 848-0302

JOB NUMBER: 132003 SHEET 2 OF 2 SHEETS

PLOT DATE: April 8, 2016
FILE PATH: W:\Jobs (13)\132003\Drawings\Final\Studies & Calculations\SWCP\Appendix H Details.dwg

Appendix I

Geotechnical Investigation

GEOTECHNICAL INVESTIGATION

On

PROPOSED RESIDENTIAL DEVELOPMENT
THE EDGE
at
737-765 Montague Expressway
Milpitas, California

For
SCS Development

By
T. Makdissy Consulting, Inc.

Project No. E 321-1
February 23, 2015

T. MAKDISSY CONSULTING, INC.
Geotechnical Consultants

Project No. E321-1
February 23, 2015

Mr. Kenneth L. Perry
Vice President of Construction
SCS Development Company
404 Saratoga Ave, Suite 100
Santa Clara, CA 95050

Subject: Proposed Residential Development
The Edge
737-765 Montague Expressway
Milpitas, California
GEOTECHNICAL INVESTIGATION

Dear Mr. Perry:

In accordance with your authorization, ***T. Makdissy Consulting, Inc.,*** has investigated the geotechnical conditions at the subject site located in Milpitas, California.

The accompanying report presents the results of our field investigation. Our findings indicate that development of the site for the proposed residential development is feasible provided the recommendations of this report are carefully followed and are incorporated into the project plans and specifications.

Should you have any questions relating to the contents of this report or should additional information be required, please contact our office at your convenience.

Very Truly Yours
T. Makdissy Consulting, Inc.

REGISTERED PROFESSIONAL ENGINEER
TOM S. MAKDISSY
No. 556
Exp: 3/31/16
GEOTECHNICAL
STATE OF CALIFORNIA

Tom Makdissy, P.E., G.E.
Principal Engineer

REGISTERED PROFESSIONAL ENGINEER
SIMON MAKDESSI
2548
GEOTECHNICAL
STATE OF CALIFORNIA

Simon Makdessi, P.E., G.E.
Senior Engineer

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GEOTECHNICAL IVESTIGATION

Purpose and Scope

The purpose of the investigation for the proposed residential development located on Montague Expressway, Milpitas California was to determine the surface and subsurface soil conditions at the subject site. Based on the results of the investigation, criteria were established for the grading of the site, the design of foundations for the proposed development, and the construction of other related facilities on the property.

Our investigation included the following:

a. Field reconnaissance by the Soil Engineer;
b. Determine the general seismicity of the site;
b. Drilling and sampling of five borings;
c. Laboratory testing of soil samples;
d. Analysis of the data and formulation of conclusions and recommendations; and
e. Preparation of this written report.

Details of our field and laboratory investigation are presented in Appendices A and B respectively.

Site Location and Description

The site is located in the south central part of Milpitas, at the north eastern side of the intersection of Piper Drive with Montague Expressway, within an existing industrial area. Topographically, the site is located within generally level terrain with a slight fall toward the west. The site is approximately 5.5 acres in size and bounded by Piper Drive to the west, industrial properties to the north and east with the northern property containing a railway track running the full length and adjacent the north property line, and Montague Expressway to the south. The site is currently occupied by a large industrial building that contains a number of businesses, with associated parking areas and storage areas. The existing building is a single story warehouse structure of tilt-up construction with concrete floors. The remainder of the site is covered with asphaltic concrete pavement with some minor vegetated areas. The vegetation cover consists of a few pine trees and a large oak in the south west

part of the site, shrubs along the north property line and shrubs and ground cover in various planter areas and adjacent the public sidewalk.

The majority of the western part of the site is a storage area for a recycling business with stacks and pallets of mainly cardboard and other recycling products with scattered dumpsters. At the rear north eastern corner, there exists a large single story metal clad shed that stores office furniture and equipment. At the south western part of the site is a fenced and gated area that contains a storage shed and trailer, scattered construction materials and metal frames.

Proposed Development

It is our understanding that the proposed project consists of developing the site for the construction of a 5 story, 381 unit apartment building with a 6 story parking structure in the center of the apartment building complex, a clubhouse, some retail space, and associated paved areas. All structures are planned to be constructed at grade

The extent of grading is not known at this time, but is expected to consist of minor cuts and fills to achieve design grades, exclusive of any remedial grading.

Subsurface Conditions

A total of five borings were drilled to depths ranging from 29.5 to 49.5 feet. The borings generally encountered a pavement section over 5 to 8 feet of firm to stiff old fill, underlain by variable sequences of firm to stiff silty clay, loose to medium dense clayey sand, and medium dense to dense silty and sandy gravel, to the maximum depth explored of 49.5 feet.

The pavement section ranged from 2.5 to 6 inches of asphaltic concrete over 0 to 6 inches of aggregate base. The underlying fill material comprised of firm to stiff silty clay, clayey silt, sandy clay, aggregate base, and a mixture of these materials. The thickness of the fill was difficult to accurately determine, but was evaluated to extend to depths ranging from 5 to 8 feet.

The underlying native soil is predominantly a silty clay material, with variable interbeds/layers of clayey sand, silty sand, and silty sandy gravel. These materials ranged in consistency from loose to dense.

Atterberg Limits testing on the near surface soil revealed Plasticity Index (PI) values ranging from 9 to 14, indicating the near surface soil to be low to moderately expansive.

Groundwater was encountered in all borings between 8 and 11 feet below the ground surface, recorded at the time of drilling. Fluctuations in the groundwater table can be expected with changes in seasonal rainfall, urbanization, and construction activities at or in the vicinity of the site.

A more thorough description and stratification of the soil conditions are presented on the respective, "Logs of Test Borings" Appendix A. The approximate locations of the borings are shown on Figure 1, "Site Plan"' Appendix A.

2013 CBC Seismic Design Criteria

The site will be subject to ground shaking from nearby and regional seismic activity. The potential damaging effects of nearby and regional earthquake activity should be considered in the design of structures. As a minimum, seismic design should be in accordance with Chapter 16 of the 2013 California Building Code (CBC). The 2013 CBC utilizes the design procedures outlined in the 2010 ASCE 7-10 Standard. The seismic design parameters have been developed using the online U.S. Geological Survey, US Seismic Design Maps tool, version 3.1.0, last updated 11 July 2013, and a site location based on longitude and latitude. The parameters generated for the subject site with Latitude 37.4121° N and Longitude -122.8896° W, are presented in Table 1.

Table I
2013 CBC Seismic Design Criteria

Seismic Parameter	Coefficient	Value
Mapped MCE Spectral Acceleration at Short-Period 0.2 secs	S_s	1.6720
Mapped MCE Spectral Acceleration at a Period of 1.0s	S_1	0.659
Site Class		D
Adjusted MCE, 5% Damped Spectral Response Acceleration at Short Period of 0.2s for Site Class D	S_{MS}	1.672
Adjusted MCE, 5% Damped Spectral Response Acceleration at Period of 1.0s for Site Class D	S_{M1}	0.989
Design 5% Damped Spectral Response Acceleration at Short Period of 0.2s for Occupancy Category I/II/III	S_{DS}	1.115
Design 5% Damped Spectral Response Acceleration at Period of 1.0s for Occupancy Category I/II/III	S_{D1}	0.659

Liquefaction Potential Evaluation

Liquefaction occurs primarily in relatively loose, saturated, cohesionless soils. Under earthquake stresses, these soils become "quick", lose their strength and become incapable of supporting the weight of the overlying soils or structures. The data used for evaluating liquefaction potential of the subsurface soils consisted of the penetration resistance, the soil gradation, the relative density of the materials, and the groundwater level.

There is a possibility that the 3 foot thick saturated clayey sand layer encountered in boring B-1 at 13 feet, the 2 foot thick sand layer in boring B-2 at 22 feet, the 7 foot thick layer of silty sandy gravel in boring B-4 at 14 feet, and the 5 foot thick layer of sand and sandy gravel in boring B-5 at 14 feet below existing grade will potentially liquefy in a significant earthquake event. It is estimated that the liquefaction induced settlements would range from ¼" to 1½". Given the discontinuous nature of these layers, and the thick, predominantly-clay cover overlying these potentially liquefiable sand layers, the surface manifestations of liquefaction will be limited minor differential settlement, if any. We recommend that the structures be designed to tolerate differential liquefaction induced settlements of 1 inch over a 50 foot horizontal distance.

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

General

1. From a geotechnical point of view, the site is suitable for the construction of the proposed residential development provided the recommendations presented in this report are incorporated into the project plans and specifications.

2. The most prominent geotechnical features of this site is the presence of;
   a. low to moderately expansive near surface soil,
   b. up to 8 feet of old fill
   c. potentially liquefiable soil deposits in the upper 25 feet with estimated liquefaction induced settlements ranging from ¼" to 1½"
   d. firm to stiff soil in the upper 20 to 25 feet that is incapable of supporting a 6 story parking structure on a shallow foundation system

3. We recommend that the near surface layer of old fill material be completely sub-excavated, reused and recompacted as engineered fill beneath the proposed apartment building structures only. In non-building areas, such as pavement areas, we recommend that only a portion of the old fill be removed, such that the upper 3 feet of soil below subgrade level is comprised of engineered fill. It is noted that given the age, and presence of several structures on the site, there may be areas of old fill or presence of sub-surface structures not encountered in the borings that may require remedial grading. Given the difficulty in evaluating the actual depth of old fill from the borings, we recommend that during demolition or site preparation during the commencement of grading activities, several shallow test pits be excavated to visually confirm the depth of old fill.

4. We recommend the parking structure be supported on a deep pile foundation system or a spread footing system upon ground improvement methods in the upper 30 feet. It is noted that the 6 story parking structure currently under construction for the Amalfi Apartments project less than a ¼ mile to the north, is supported on a spread footing system upon soil improved by a Drilled Displacement Column (DDC) system that extended 25 to 30 feet in depth. Based on our experience, the use of a pile foundation is less economical that the DDC improved soil system and therefore, will not be considered for the support of the parking structure. If either a deep foundation system or ground improvement methods are employed beneath the parking structure, complete removal and recompaction of the old fill

is not required, but partial removal and recompaction will be needed to support the floating lower level slab prior to ground improvement. DDC methods are typically used beneath all footings, and the soil between footings will not be improved, however, some improvement will occur within 5 feet of the DDC improved areas. If DDC methods are employed, the liquefaction potential beneath the parking structure foundations will be essentially eliminated, and the structure will not be required to tolerate the estimated liquefaction induced settlements, however, there will be reduced liquefaction potential between the DDC elements beneath the footings.

5. The proposed apartment building structures may be satisfactorily supported on a post tensioned slab system. Specific foundation design recommendations are provided under the heading Foundations.

6. The estimated liquefaction induced settlements must be incorporated into the foundation design and civil design of gravity utilities

Demolition/Site Preparation

7. Prior to any grading, demolition of the existing structures on the site should be completed. Demolition should include the complete removal of all surface and subsurface structures. If any of the following are encountered: concrete, septic tanks, storm inlets, foundations, asphalt, machinery, equipment, debris, and trash, these should also be removed with the exception of items specified by the owner for salvage. If any trees are to be removed they should be properly grubbed to adequately remove all major root systems. The owner should specify the saving or removal of shrubs or trees on the site. In addition, all known underground structures must be located on the grading plans so that proper removal may be carried out. It is vital that ***T. Makdissy Consulting, Inc.*** intermittently observe the removal of subsurface structures and be notified in ample time to ensure that no subsurface structures are covered and that the root systems from grubbing operations are completely removed. If ***T. Makdissy Consulting, Inc.*** is not contacted to observe the demolition and removal of subsurface structures, further backhoe exploratory investigation will need to be performed prior to the commencement of grading.

8. Excavations made by the removal of the structures should be left open by the contractor for backfill in accordance with the requirements for engineered fill. The removal of underground

structures should be done under the observation of the Soil Engineer to verify adequacy of the removal and that subsoils are left in proper condition for placement as engineered fills. Any soil exposed by the removal operations which are deemed soft or unsuitable by the Soil Engineer, shall be excavated as uncompacted fill or saturated soil and be removed as required by the Soil Engineer during grading. Any resulting excavations should be properly backfilled with engineered fill under the observation of the Soil Engineer. It is important that ***T. Makdissy Consulting, Inc.*** be present during removal activities to verify that **all** excavations created by grubbing or removal of subsurface structures are left open and located on a grading plan. If any excavations are loosely backfilled without our knowledge and these excavations are not located and backfilled during grading, future settlement of these loosely filled excavations could occur and may cause damage to structures and improvements.

Grading

9. The grading requirements presented herein are an integral part of the grading specifications presented in Appendix C and should be considered as such.

10. Grading activities during the rainy season on cohesive soils will be hampered by excessive moisture. Grading activities may be performed during the rainy season, however, achieving proper compaction may be difficult due to excessive moisture; and delays may occur. In addition, measures to control potential erosion may need to be provided. Grading performed during the dry months will minimize the occurrence of the above problems.

11. After any stripping, site preparation or fill sub-excavation, and prior to the placement of any fill, the top 8 inches of exposed native ground for fill areas should be scarified and compacted to a minimum degree of relative compaction of 90% at 2% to 3% above optimum moisture content as determined by ASTM D1557-12 Laboratory Test Procedure. If any areas of loose fill, or yielding soil are encountered, must be excavated and removed, exposing non-yielding native soil.

12. The site may be brought to the desired finished grades by placing engineered fill in lifts of 8 inches in uncompacted thickness and compacting to the relative compaction requirements stated above.

13. All soils encountered during our investigation except those within the top few inches of predominantly organic material, are suitable for use as engineered fill when placed and compacted at the recommended moisture content and provided it does not contain any debris. Concrete or pavement materials may be incorporated within the fill provided the concrete or asphaltic concrete is broken down to less than 6 inches in size, and thoroughly mixed with the soil.

Surface Drainage

14. All finish grades around the structures should be provided with a positive gradient to an adequate discharge point in order to provide rapid removal of surface water runoff away from all foundations. No ponding of water should be allowed on the pad or adjacent to the foundations. Surface drainage must be designed by the project Civil Engineer and maintained by the property owners at all times. The pad should be graded in a manner that surface flow is to a controlled discharge system.

15. Lot slopes and drainage must be provided by the project Civil Engineer to remove all storm water from the pad and to minimize storm and/or irrigation water from seeping beneath the structures. Should surface water be allowed to seep under the structures, foundation movement resulting in structural cracking and damage will occur. Finished grades around the perimeter of the structures should be compacted and should be sloped at a minimum 2% gradient away from the exterior foundation. Surface drainage requirements constructed by the builder should be maintained during landscaping. In particular, the creation of planter areas confined on all sides by concrete walkways or decks and the residence foundation is not desirable since any surface water due to rain or irrigation becomes trapped in the planter area with no outlet. If such a landscape feature is necessary, surface area drains in the planter area or a subdrain along the foundation perimeter must be installed.

16. Continuous roof gutters are recommended. According to local government requirements, roof downspout and drain flows should be directed to bio-filtration areas next to the building perimeter, where possible. From a geotechnical and maintenance point of view it is undesirable to discharge water into bio-filtration areas near foundations, because of the possibility of water ponding for sustained periods of time. Commonly bio-filtration areas could be located as close as 2 to 3 feet from the building perimeter, and consist of an 18 inch layer of sandy loam over 18 inches of permeable

gravel material. The top of the bio-filtration area is typically approximately 1 foot below pad grade, therefore, the base of the bio-filtration area will be approximately 4 feet below pad grade. The base of the bio-filtration area will contain a perforated pipe to drain any water that may collect within 24 hours. If such a system is employed, we must be consulted on the impact of these systems when located in close proximity to the foundation and provide supplemental recommendations including deepened footings or waterproofing. In addition, the property owners must always maintain the bio-filtration area to ensure that it is performing as designed and that water does not pond in the area for longer than 48 hours.

Foundations for Apartment Buildings - Post Tensioned Slab on Grade

17. Post-tensioned slabs should be designed using the method of the Design of Post-Tensioned Slabs on Ground, 3rd edition 2004, addendum 2 dated May 2008. The following soil and climate parameters were used in our design:

Parameter	Calculated or Assumed Value
Thornthwaite Moisture Index (I_m)	0
Depth to constant soil suction	5 feet
Constant Soil Suction at depth based on I_m)	3.5 pF
Driest Soil Suction	4.5 pF
Wettest Soil Suction	3.0 pF
Average Plasticity Index	12
Average Liquid Limit	30
Avg Percent Passing #200 Sieve	75%
Average Percent Clay	19%

Using the above values, the recommended geotechnical criteria for use in the design of the post-tensioned slabs is as follows;

	Swelling Mode	
	Center Lift	Edge Lift
Edge Moisture Variation Distance (e_m)	9.0 feet	4.7 feet
Differential Soil Movement (y_m)	0.61 inches	1.00 inches

18. As indicated earlier, bio-filtration areas may be designed close to the foundation. Where bio-filtration areas are located closer than 5 feet of the building, the section of loose loam and gravel, will provide reduced lateral support, and we recommend a deepened footing be constructed along the perimeter the building adjacent to the bio-filtration area and extending 3 feet beyond in plan length. The depth of the deepened footing will depend on how close the bio-filtration area to the building perimeter. As a guide, the footing is to be deepened such that when an imaginary line inclined at 45 degrees from the outside edge base of the footings , it extends below the base of the bio-filtration area excavation.

General Construction Requirements for Post-Tensioned Slab

19. Prior to construction of the slab, the slab subgrade should be observed by the Soil Engineer to verify that all under-slab utility trenches greater than 18 inches in width have been properly backfilled and compacted, and that no loose or soft soils are present on the slab subgrade.

20. The slab subgrade should be soaked to saturation (minimum 5% above optimum) to a depth of 12 to 18 inches prior to placement of the capillary break or vapor retarder/barrier. This should be verified and approved by the Soil Engineer. The penetration of a thin metal probe to a depth of 10-12 inches generally indicates sufficient saturation.

21. The four (4) inch (minimum thickness) layer of gravel typically placed to provide a capillary break beneath concrete slab-on-grade floors may be omitted beneath the monolithically poured post-tensioned slab foundations provided that the slabs are at least 10 inches thick. If it is desired to use a 4 inch layer or thinner of gravel section, the gravel should consist of broken stone, crushed or uncrushed gravel, quarry waste, or a combination thereof. The aggregate shall be free from deleterious substances. It shall be of such quality that the absorption of water in a saturated dry condition does not exceed 3% of the oven dry weight of the sample. The material shall be ¾" minus material with no more than 3% passing the #200 sieve.

22. A moisture vapor retarder/barrier is recommended beneath all slabs-on-grade that will be covered by moisture-sensitive flooring materials such as vinyl, linoleum, wood, carpet, rubber, rubber-backed carpet, tile, impermeable floor coatings, adhesives, or where moisture-sensitive

equipment, products, or environments will exist. We recommend that design and construction of the moisture vapor retarder/barrier conform to Section 1805 of the 2013 California Building Code and pertinent sections of American Concrete Institute (ACI) guidance documents 302.1R-04, 302.2R-06 and 360R-10.

23. The moisture vapor retarder/barrier can be placed above the 4 inches of gravel or directly on the soil subgrade and should consist of a minimum 10 mils thick polyethylene with a maximum perm rating of 0.1 in accordance with ASTM E 1745. Seams in the moisture vapor retarder/barrier should be overlapped no less than 6 inches or in accordance with the manufacturer's recommendations. Joints and penetrations should be sealed with the manufacturer's recommended adhesives, pressure-sensitive tape, or both. The contractor must avoid damaging or puncturing the moisture vapor retarder/barrier and repair any punctures with additional polyethylene properly lapped and sealed. The installation of the vapor retarder membrane must be in conformance with ASTM E1643.

24. A minimum of two inches of wetted sand should be placed over the vapor retarder membrane to facilitate curing of the concrete and to act as a cushion to protect the membrane. The perimeter of the mat should be thickened to bear on the prepared building pad and to confine the sand. During winter construction, sand may become saturated due to rainy weather prior to pouring. Saturated sand is not desirable because the sand cushion may become over saturated, and boil into the concrete causing undesirable sand pockets within the slab. As an alternate, a sand-fine gravel mixture that is stable under saturated conditions may be used. However, the material must be approved by the Soil Engineer prior to use.

25. Alternatively, the sand layer may be eliminated provided the concrete has a maximum water/cement ratio of 0.45 and a 15 mil Class A vapor retarder membrane, such as Stego® Wrap or equivalent is used. In any case, the vapor retarder/barrier should have a maximum perm rating of 0.3 in accordance with ASTM E 1745. Seams in the moisture vapor retarder/barrier should be overlapped no less than 6 inches or in accordance with the manufacturer's recommendations. Joints and penetrations should be sealed with the manufacturer's recommended adhesives, pressure-sensitive tape, or both. The contractor must avoid damaging or puncturing the vapor retarder/barrier and repair any punctures with additional polyethylene properly lapped and sealed.

26. Any exterior concrete flatwork such as steps, patios, or sidewalks should be designed independently of the slab, and expansion joints should be provided between the flatwork and the structural unit.

Foundations for Parking Structure – Spread Footing on DDC Improved Soil

27. DDC ground improvement methods are commonly used to increase the bearing capacity of weak soil, reduce the settlement potential of compressible soil, and mitigate or increase the resistance of loose granular soils against liquefaction. The method involves pushing a probe into the ground to the desired improvement depth, and then pumping low strength concrete under pressure as the probe is withdrawn creating a column of low strength concrete. The combination of the probe pushing out the soil laterally and the and the pressurized grouting filling soil voids, increases the strength of the soil for a certain distance beyond the column dimensions.

28. The design and construction of the DDC ground improvement is performed by a specialty contractor under a design-build contract arrangement. The final design of allowable bearing capacities for spread footings upon DDC improved soil is performed by the specialty contractor based on soil conditions and load tests. For planning purposes, continuous and isolated spread footings can be design using an allowable bearing pressure of 5,000 psf . due to dead plus sustained live loads, and 6,600 p.s.f. due to all loads which include wind or seismic. The specification of structural reinforcement for all foundations is to be performed by a structural engineer.

29. The settlements of footings designed and constructed in accordance with the aforementioned criteria are estimated to be less than one-half inch. The differential settlement between individual column or wall footings can be estimated as the difference between the settlements at any two points and should not exceed one-quarter inch.

30. Lateral loads resulting from wind or earthquake may be resisted in the form of passive pressure on the site of footings and friction between the bottom of the footings and soils on which these are supported. The passive soil resistance against footings may be taken equal to a fluid having an equivalent fluid pressure of 300 p.c.f, below a depth of 1 foot. This assumes that the footings are placed neat against the soil face or that properly compacted backfill is placed in the space between the footings and the soil faces. A coefficient of friction of 0.40 may be used at the base of the footing.

Miscellaneous Concrete Flatwork

31. Miscellaneous flatwork, driveways, and walkways may be designed with a minimum thickness of 4.0 inches. Control joints should be constructed to create squares or rectangles with a maximum spacing of 15 feet on large slab areas. Walkways should be separated from foundations with a thick expansion joint filler. Control joints should be constructed into walkways at a maximum of 5 feet spacing.

32. The sub grade soils beneath all miscellaneous concrete flatwork, driveways, and walkways should be compacted to a minimum of 90% relative compaction. The geotechnical engineer should monitor the compaction of the sub grade soils and perform testing to verify that proper compaction has been obtained.

Retaining Walls

33. Retaining walls should be designed to resist lateral pressures exerted from a media having an equivalent fluid weight as follows:

Active Condition	=	45 p.c.f. for horizontal backslope
At-rest Condition	=	65 p.c.f.
Passive Condition	=	250 p.c.f.
Coefficient of Friction	=	0.30

34. For a non-horizontal backslope, the active condition equivalent fluid weight can be increased by 1.5 p.c.f. for each 2 degree rise in slope from the horizontal.

35. Active conditions occur when the top of the wall is free to move outward. At-rest conditions apply when the top of wall is restrained from any movement.

36. It should be noted that the effects of any surcharge, traffic or compaction loads behind the walls must be accounted for in the design of the walls.

37. The above criteria are based on fully drained conditions. If drained conditions are not possible, then the hydrostatic pressure must be included in the design of the wall. An additional linear distribution of hydrostatic pressure of 63 p.c.f. should be adopted, in this case.

38. In order to achieve fully-drained conditions, a drainage filter blanket should be placed behind the wall. The blanket should be a minimum of 12 inches thick and should extend the full height of the wall to within 12 inches of the surface. If the excavated area behind the wall exceeds 12 inches, the entire excavated space behind the 12-inch blanket should consist of compacted engineered fill or blanket material. The drainage blanket material may consist of either granular crushed rock and drain pipe fully encapsulated in geotextile filter fabric or Class II permeable material that meets CalTrans Specification, Section 68, with drainage pipe but without fabric. A 4-inch perforated drain pipe should be installed in the bottom of the drainage blanket and should be underlain by at least 4 inches of filter type material. A 12-inch cap of clayey soil material should be placed over the drainage blanket. A typical detail for retaining wall back drains is presented in Appendix C. All back drains should be outlet to suitable drainage devices. Retaining wall less than 3 feet in height should be provided with backdrains or weep holes.

39. As an alternate to the 12-inch drainage blanket, a pre-fabricated strip drain (such as Miradrain) may be used between the wall and retained soil. In this case, the wall must be designed to resist an additional lateral hydrostatic pressure of 30 p.c.f.

40. Piping with adequate gradient shall be provided to discharge water that collects behind the walls to an adequately controlled discharge system away from the structure foundation.

41. The retaining walls may be founded on a friction pier foundation or on spread footing foundations for walls that are not a part of a building structure. Spread footing and pier design criteria are given below.

Retaining Wall/Soundwall Spread Footings

42. Spread footings should have a minimum depth of eighteen (18) inches below lowest adjacent pad grade (i.e., trenching depth) for soil subgrade. At this depth, the recommended design bearing pressure for continuous footings should not exceed 2,500 p.s.f. due to dead plus sustained live loads and 3,300 p.s.f. due to all loads which include wind and seismic.

43. To accommodate lateral loads, the passive resistance of the foundation soil can be utilized. The passive soil pressures can be assumed to act against the front face of the footing below a depth of one foot below the ground surface. It is recommended that a passive pressure equivalent to that of a

fluid weighing 250 p.c.f. be used. The weight of the soil above the footing can be used in the frictional calculations. For design purposes, an allowable friction coefficient of 0.30 can be assumed at the base of the spread footing.

Retaining Wall/Soundwall Friction Piers

44. The piers should be designed on the basis of skin friction acting between the soil and the pier. For the soils at the site, an allowable skin friction value of 500 p.s.f. can be used for combined dead and live loads, below a depth of 2 feet. This value can be increased by one-third for total loads which include wind or seismic forces. The size, depth and spacing of the piers is to be determined by the structural engineer.

45. To resist lateral loads, the passive resistance of the soil can be used. The soil passive pressures can be assumed to act against the lateral projected area twice the pier diameter. It is recommended that a passive pressure equivalent to that of a fluid weighing 250 p.c.f be used below 2 feet of final pad grade.

Pavement Areas

46. R-value tests were not performed as part of this investigation, as the soil expected at subgrade will consist of the variable near surface fill material. For preliminary design purposes we will assume an R-value of 5 for preliminary design.

47. Based on a R-Value of 5, the following flexible pavement sections are recommended.

Traffic Index	AC (inches)	Class II[1] AB (inches)
4.5	3.0	10.0
5.0	3.0	12.0
5.5	3.0	14.0
6.0	4.0	13.5
7.0	4.0	17.0

Notes: [1]Minimum R-Value = 78
R-Value = Resistance Value
All Layers in compacted thickness to Cal-Trans Standard Specifications

48. During the latter stages of utility installation, we recommend that representative samples of subgrade be collected at that time and tested for R-value to determine final pavement section design.

49. After underground facilities have been placed in the areas to receive pavement and removal of excess material has been completed, the upper 6 inches of the sub-grade soil shall be scarified, moisture conditioned, and compacted to a minimum relative compaction of 95% in accordance with the grading recommendations specified in this report.

50. All aggregate base material placed subsequently should be compacted to a minimum relative compaction of 95% based on the ASTM Test Procedure of D1557-12 (latest edition). The construction of the pavement areas should conform to the requirements set forth by the latest Standard Specifications of the Department of Transportations of the State of California and/or City of Milpitas, Department of Public Works.

51. If planter areas are provided within or immediately adjacent to the pavement areas, provisions should be made to control irrigation water from entering the pavement subgrade. Water entering the pavement section at subgrade level, which does not have a means for discharge, could cause softening of this zone and accelerate pavement degradation.

Utility Trenches

52. Applicable safety standards require that trenches in excess of 5 feet must be properly shored or that the walls of the trench slope back to provide safety for installation of lines. This is particularly relevant if trenching is to extend into the sand. If trench wall sloping is performed, the inclination should vary with the soil type. The underground contractor should request an opinion from the Soil Engineer as to the type of soil and the resulting inclination.

53. With respect to state-of-the-art construction or local requirements, utility lines are generally bedded with granular materials. These materials can convey surface or subsurface water beneath the

structures. It is, therefore, recommended that all utility trenches which possess the potential to transport water be sealed with a compacted impervious cohesive soil material or lean concrete where the trench enters/exits the building perimeter.

54. Utility trenches extending underneath all traffic areas must be backfilled with native or approved import material and compacted to a relative compaction of 90% to within 6 inches of the subgrade. The upper 6 inches should be compacted to 95% relative compaction in accordance with Laboratory Test Procedure ASTM D1557 (latest edition). Backfilling and compaction of these trenches must meet the requirements set forth by the City of Milpitas, Department of Public Works. Utility trenches within landscape areas may be compacted to a relative compaction of 85%.

Project Review and Construction Monitoring

55. All grading and foundation plans for the development must be reviewed by the Soil Engineer prior to contract bidding or submitted to governmental agencies so that plans are reconciled with soil conditions and sufficient time is allowed for suitable mitigative measures to be incorporated into the final grading specifications.

56. ***T. Makdissy Consulting, Inc.*** should be notified at least two working days prior to site clearing, grading, and/or foundation operations on the property. This will give the Soil Engineer ample time to discuss the problems that may be encountered in the field and coordinate the work with the contractor.

57. Field observation and testing during the demolition and/or foundation operations must be provided by representatives of ***T. Makdissy Consulting, Inc.*** to enable them to form an opinion regarding the adequacy of the site preparation, the acceptability of fill materials, and the extent to which the earthwork construction and the degree of compaction comply with the specification requirements. Any work related to the grading and/or foundation operations performed without the full knowledge and under the direct observation of the Soil Engineer will render the recommendations of this report invalid. This does not imply full-time observation. The degree of observation and frequency of testing services would depend on the construction methods and schedule, and the item of work.

LIMITATIONS AND UNIFORMITY OF CONDITIONS

1. It should be noted that it is the responsibility of the owner or his representative to notify ***T. Makdissy Consulting, Inc.,*** in writing, a minimum of two working days before any clearing, grading, or foundation excavations can commence at the site.

2. The recommendations of this report are based upon the assumption that the soil conditions do not deviate from those disclosed in the borings and from a reconnaissance of the site. Should any variations or undesirable conditions be encountered during the development of the site, ***T. Makdissy Consulting, Inc.,*** will provide supplemental recommendations as dictated by the field conditions.

3. This report is issued with the understanding that it is the responsibility of the owner, or his representative, to ensure that the information and recommendations contained herein are brought to the attention of the Architect and Engineer for the project and incorporated into the plans and the necessary steps are taken to see that the Contractor and Subcontractors carry out such recommendations in the field.

4. At the present date, the findings of this report are valid for the property investigated. With the passage of time, significant changes in the conditions of a property can occur due to natural processes or works of man on this or adjacent properties. In addition, legislation or the broadening of knowledge may result in changes in applicable standards. Changes outside of our control may render this report invalid, wholly or partially. Therefore, this report should not be considered valid after a period of two (2) years without our review, nor should it be used, or is it applicable, for any properties other than those investigated.

5. Not withstanding all the foregoing, applicable codes must be adhered to at all times.

APPENDIX A

Field Investigation

Vicinity Map

Site Plan

Logs of Test Borings

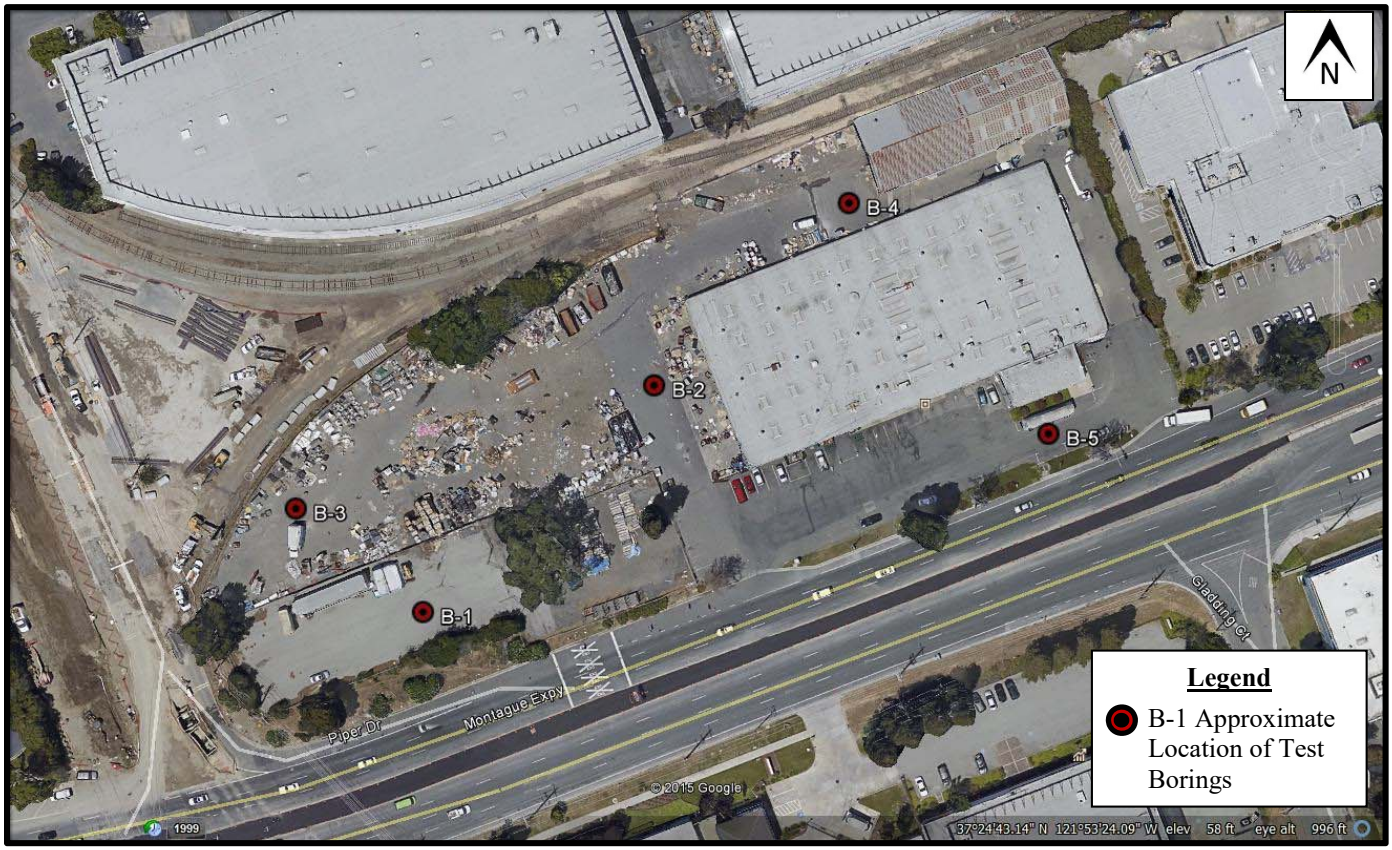
FIELD INVESTIGATION

The field investigation was performed on February 2, 2015, and included a reconnaissance of the site and the drilling of five exploratory borings at the approximate locations shown on Figure 1, "Site Plan".

The five borings were drilled to a maximum depth of 49.5 feet below the existing ground surface. The drilling was performed with a CME-55 Drill rig utilizing a 4 inch solid flight continuous auger and automatic hammer system. Visual classifications were made from cuttings and the samples in the field. As the drilling proceeded, relatively undisturbed core samples were obtained by means of 2.5 inch O.D. split-tube sampler. The sampler was driven into the in-situ soils under the impact of a 140-pound hammer having a free fall of 30 inches. The number of blows required to advance the sampler 12 inches into the soil are reported on the boring logs.

The samples were sealed and returned to the laboratory for testing. Classifications made in the field were verified in the laboratory after further examination and testing.

The stratification of the soils, descriptions, location of undisturbed soil samples and blow counts are shown on the respective "Logs of Test Borings" contained within this appendix.



T. MAKDISSY CONSULTING, INC. Geotechnical Consultants	Proposed Residential Development 737-765 Montague Expressway Milpitas, California			
	Site Plan	**Project No. E 321-1**	**Drawn by: SJ**	**Figure No. 1**

Borehole Log B1

Location	: See Site Plan
Date Drilled	: February 2, 2015
Drilling Contractor	: Britton Exploration
Drill Rig	: CME-55
Drilling Method	: Hollow Stem
Hammer	: 140 lbs/30" drop
Borehole Backfill Method	: Soil cuttings
Logged By	: SM

Total Depth of Boring: 29.5 ft.

Depth in Feet	GWT	Sample No.	Sample Location	Blow Count	Graphic Log	DESCRIPTION	Dry Density (pcf)	Moisture Content (%)	Additional Drilling Details
0						Approximately 2.5-inches Asphalt Concrete.			
						Approximately 7-inches Aggregate Base.			
						Dark Brown, Sandy CLAY (CL) with gravel, slightly moist, stiff [FILL]			
		1-1		16			113.0	12.1	
5						Brown, Silty CLAY/Clayey SILT (CL/ML), very moist, stiff [Possible Fill].			
	▼	1-2		14			100.1	24.7	
						Mottled Grey-Brown and Orange-Brown, Silty CLAY (CL), moist, very stiff. Increasing sand content with depth.			
10									
		1-3		11			107.6	22.3	
						Brown, Clayey SAND (SC), wet, loose to medium dense.			
15									
						Dark Grey-Black, Silty CLAY (CL), moist, stiff.			
		1-4		13			95.8	29.8	
20						Mottled Light Grey-White and Light Brown-Grey, Silty CLAY (CL) with fine gravel, moist to very moist, stiff.			
		1-5		10			102.7	24.5	
25									
		1-6		14		As above, but darker in color and with coarse angular gravel.	110.1	20.3	
30						Boring terminated at 29.5 feet. Groundwater encountered at 8 feet.			

T. MAKDISSY CONSULTING, INC.
Geotechnical Consultants

Client	: Citation Homes	Figure No.	: 3
Project No.	: E321-1		
Project Name	: Edge	Drawn By	: PV
City	:		
Date	: February 11, 2015	Reviewed By	: TM

Location	: See Site Plan
Date Drilled	: February 2, 2015
Drilling Contractor	: Britton Exploration
Drill Rig	: CME-55
Drilling Method	: Hollow Stem
Hammer	: 140 lbs/30" drop
Borehole Backfill Method	: Soil cuttings
Logged By	: SM

Borehole Log B2

Total Depth of Boring: 49.5 ft.

Depth in Feet	GWT	Sample No.	Sample Location	Blow Count	Graphic Log	DESCRIPTION	Dry Density (pcf)	Moisture Content (%)	Additional Drilling Details
0						Approximately 3-inches Asphalt Concrete.			
						Approximately 6-inches of Aggregate Base			
		2-1		12		CLAYEY SAND, Dark Brown and Brown, mixture of SILT and Silty CLAY (ML and CL) with gravel, slightly moist, firm, friable [FILL].	102.6	15.2	LL= 31%, PI= 12%
5		2-2		9		CLAYEY SILT, CLAYEY SILT, Brown and Light Brown, Silty CLAY (CL), slightly moist, firm, friable, some fine to coarse gravel inclusion, some faint white mottling [Possible Fill].	113.1	14.7	LL= 28%, PI= 11%
10	▼	2-3		9		Light Brown and Light Gray, Silty CLAY (CL), moist to very moist, firm, with maroon mottling.	99.4	20.3	
15		2-4		7		Light Grey and Light Brown, Sandy Gravelly Silty CLAY (CL), very moist, firm.	111.1	19.9	
20		2-5		50/6"		Grey, fine to medium GRAVEL, some sand inclusion, wet, very dense.	123.0	11.1	
		2-6		15		Brown and Greyish-Brown mottling, SAND with SILT, moist, medium dense.		17.7	#200= 11.8%
25		2-7		13		Dark Greyish-Black, Silty CLAY (CL) with some gravel inclusion, moist, stiff.	90.4	34.9	
						Mottled Light Greyish-White and Light Greyish-Brown, Silty CLAY (CL) with fine to medium gravel, moist to very moist, stiff.			
30		2-8		12		Mottled Light Brown, Brown and Dark Brown, Silty CLAY (CL) with fine to medium gravel, very moist, firm to stiff.	115.7	18.8	
35		2-9		38		Variable thin layers of Brown, Silty SAND, Sandy and Clayey GRAVEL, and Silty CLAY (SM, GP, GC and CL), very dense.	126.3	13.3	
40									

Continues on Page 2.

T. MAKDISSY CONSULTING, INC.
Geotechnical Consultants

Client	: Citation Homes	Figure No.	: 4A
Project No.	: E321-1		
Project Name	: Edge	Drawn By	: PV
City	:		
Date	: February 11, 2015	Reviewed By	: TM

Location	: See Site Plan
Date Drilled	: February 2, 2015
Drilling Contractor	: Britton Exploration
Drill Rig	: CME-55
Drilling Method	: Hollow Stem
Hammer	: 140 lbs/30" drop
Borehole Backfill Method	: Soil cuttings
Logged By	: SM

Borehole Log B2

Total Depth of Boring: 49.5 ft.

Depth in Feet	GWT	Sample No.	Sample Location	Blow Count	Graphic Log	DESCRIPTION	Dry Density (pcf)	Moisture Content (%)	Additional Drilling Details
40		2-10		26		Brown, Clayey Gravelly SAND (SC/SP), wet, dense, fine to medium gravel up to 1/2-inch.			#200= 19.8%
						Brown, Silty CLAY (CL) with some sand, very moist, firm.			
45		2-11		10				18.91	
		2-12		10					
50						Boring terminated at 49.5 feet. Groundwater encountered at 10 feet.			
55									
60									
65									
70									
75									
80									

T. MAKDISSY CONSULTING, INC.
Geotechnical Consultants

Client	: Citation Homes	Figure No.	: 4B
Project No.	: E321-1		
Project Name	: Edge	Drawn By	: PV
City	:		
Date	: February 11, 2015	Reviewed By	: TM

Location	: See Site Plan
Date Drilled	: February 2, 2015
Drilling Contractor	: Britton Exploration
Drill Rig	: CME-55
Drilling Method	: Hollow Stem
Hammer	: 140 lbs/30" drop
Borehole Backfill Method	: Soil cuttings
Logged By	: SM

Borehole Log B3

Total Depth of Boring: 31.5 ft.

Depth in Feet	GWT	Sample No.	Sample Location	Blow Count	Graphic Log	DESCRIPTION	Dry Density (pcf)	Moisture Content (%)	Additional Drilling Details
0						Approximately 3-inches Asphalt Concrete.			
						Approximately 6-inches of Aggregate Base.			
		3-1		18		Brown, Silty CLAY (CL) with sand, fine to medium gravel, moist, stiff [FILL].	110.4	16.8	LL= 30%, PI= 14% #200= 61.8%
5		3-2		13		Maroon-Brown, Silty CLAY (CL), slightly moist, stiff [Possible Fill].	110.5	16.3	LL= 28%, PI= 9% #200= 76.8%
						Mottled Light Grey, Grey-Brown and Orange, Silty CLAY (CL), moist, stiff			
10	▼	3-3		16		Grey with Black and Brown mottling, Silty CLAY (CL), gravel up to 3/4-inch, moist, stiff.	100.7	26.0	
						Brown and Brown-Grey, Gravelly Sandy Silty CLAY (CL), very moist to wet, firm to stiff. Some zones less gravelly.			
15		3-4		11					
						Greyish-Brown, Silty CLAY (CL), very moist, firm.			
20		3-5		9			93.0	30.4	
						Black with Grey specks, Silty CLAY (CL) with some fine gravel, moist, stiff/firm.			
25		3-6		19		Mottled Grey and Light Grey, Silty CLAY (CL) with fine to medium gravel, moist to very moist, stiff. some gravelly zones.	112.3	19.3	
30		3-7		15					
						Boring terminated at 31.5 feet. Groundwater encountered at 10.5 feet.			

T. MAKDISSY CONSULTING, INC.
Geotechnical Consultants

Client	: Citation Homes	Figure No.	: 5
Project No.	: E321-1		
Project Name	: Edge	Drawn By	: PV
City	:		
Date	: February 11, 2015	Reviewed By	: TM

Location	: See Site Plan
Date Drilled	: February 2, 2015
Drilling Contractor	: Britton Exploration
Drill Rig	: CME-55
Drilling Method	: Hollow Stem
Hammer	: 140 lbs/30" drop
Borehole Backfill Method	: Soil cuttings
Logged By	: SM

Borehole Log B4

Total Depth of Boring: 26.5 ft.

Depth in Feet	GWT	Sample No.	Sample Location	Blow Count	Graphic Log	DESCRIPTION	Dry Density (pcf)	Moisture Content (%)	Additional Drilling Details
0						Approximately 6-inches Asphalt Concrete.			
		4-1		28		Brown and Grey, mixture of SAND, CLAY and GRAVEL, slightly moist, dense [FILL].	112.4	6.9	
5		4-2		15		Mottled Brown and Grey, Silty CLAY/Clayey SILT (CL/ML), very moist, stiff [FILL].	98.7	21.5	
						Mottled Grey-Brown and Light Brown, Silty CLAY (CL), with trace fine to medium gravel, moist, stiff,			
10	▼	4-3		20			105.7	23.4	
						Dark Grey/Black, Silty CLAY (CL), with gravel up to 3/4-inch, moist, stiff, some white streaks.			
15		4-4		22		Grey-Brown, Silty Sandy GRAVEL (GM/GP), fine to coarse gravel, wet, medium dense.			#200= 3.9%
20		4-5		7		Black and Dark Grey, Silty CLAY (CH), moist to very moist, firm.			
25		4-6		19		Mottled Light Grey, Grey and some Grey-White, Silty CLAY (CL) with some fine to medium gravel, moist to very moist, stiff to very stiff.	110.6	21.3	
30						Boring terminated at 26.5 feet. Groundwater encountered at 11 feet.			

T. MAKDISSY CONSULTING, INC.
Geotechnical Consultants

Client	: Citation Homes	Figure No.	: 6
Project No.	: E321-1		
Project Name	: Edge	Drawn By	: PV
City	:		
Date	: February 11, 2015	Reviewed By	: TM

Location	: See Site Plan
Date Drilled	: February 2, 2015
Drilling Contractor	: Britton Exploration
Drill Rig	: CME-55
Drilling Method	: Hollow Stem
Hammer	: 140 lbs/30" drop
Borehole Backfill Method	: Soil cuttings
Logged By	: SM

Borehole Log B5

Total Depth of Boring: 31.5 ft.

Depth in Feet	GWT	Sample No.	Sample Location	Blow Count	Graphic Log	DESCRIPTION	Dry Density (pcf)	Moisture Content (%)	Additional Drilling Details
0						Approximately 4-inches Asphalt Concrete.			
						Approximately 6-inches Aggregate Base.			
		5-1		10		Brown, mixture of CLAY and GRAVEL, slightly moist, firm/medim dense [FILL].	109.7	7.3	
5		5-2		9		Mottled Brown, Grey and Orange-Brown, Silty CLAY (CL), some fine gravel, slightly moist to moist, firm [Native]	90.5	23.0	LL= 33%, PI= 13% #200= 87.7%
	▼								
10		5-3		17		Grey with Orange-Brown mottle and some Light Grey, Silty CLAY (CL), some gravel up to 1/2-inch, moist, stiff to very stiff.	103.7	24.1	
15		5-4		24		Brown, Silty SAND (SM) with clay, very moist, loose to medium dense,			#200= 37.7%
						Grey-Brown and Grey, Silty Sandy GRAVEL (GM/GP), wet, fine to coarse gravel, medium dense.			
20		5-5		6		Black to Dark Grey, Silty CLAY (CL), moist to very moist, firm.			
						Mottled Light Grey, White and Light Brown, Silty CLAY (CL), some fine gravel, moist to very moist, stiff.			
25		5-6		18			110.7	21.2	
30		5-7		16			109.9	21.5	
						Boring terminated at 31.5 feet. Groundwater encountered at 9 feet.			

T. MAKDISSY CONSULTING, INC.
Geotechnical Consultants

Client	: Citation Homes	Figure No.	: 7
Project No.	: E321-1		
Project Name	: Edge	Drawn By	: PV
City	:		
Date	: February 11, 2015	Reviewed By	: TM

APPENDIX B

Laboratory Investigation

Summary of Laboratory Test Results

Laboratory Test Results

LABORATORY INVESTIGATION

The laboratory testing program was directed towards providing sufficient information for the determination of the engineering characteristics of the site soils so that the recommendations outlined in this report could be formulated.

Moisture content and dry unit weight tests were performed on relatively undisturbed soil samples in order to determine the consistency of the soil and moisture variation throughout the explored soil profile and to estimate the compressibility of the underlying soils.

Sieve analysis and hydrometer testing were performed to determine the percentage of fines.

Atterberg Limits tests were performed to determine the expansion potential of the foundation soils.

The strength parameters of the foundation soils were obtained by evaluating the penetration resistance (blow counts) during sample recovery.

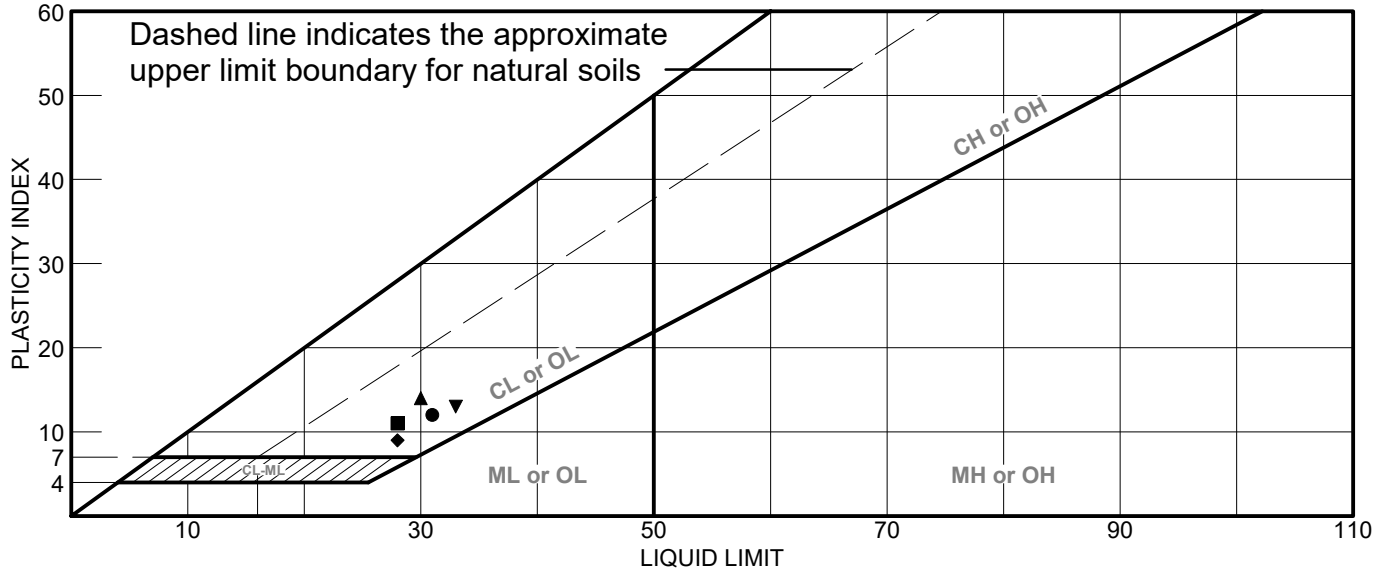
A summary of all laboratory test results is presented on Table B-I of this appendix and on the respective "Logs of Test Borings", Appendix A.

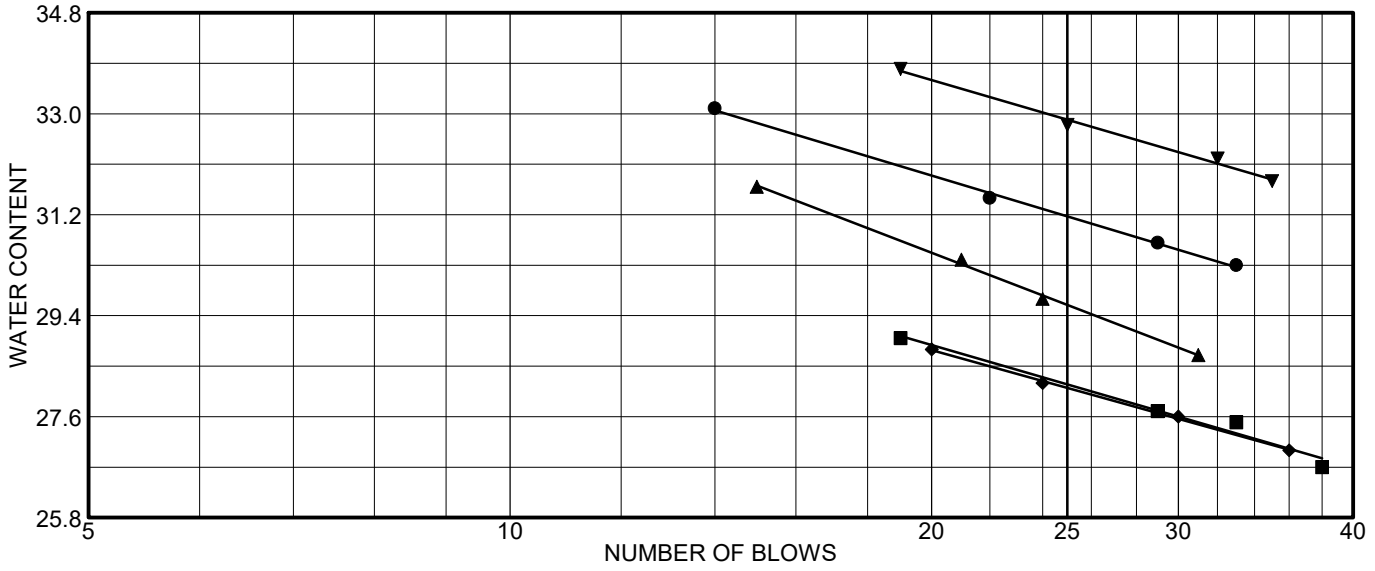
TABLE B-1

SUMMARY OF LABORATORY TESTS

Sample Number	Depth (ft.)	Dry Density (p.c.f.)	Moisture Content (% Dry Wt.)	Atterberg Limits		Sieve Analysis (% Passing No. 200 Sieve)	Sieve Analysis (% Clay)
				Liquid Limit (%)	Plasticity Index (%)		
1-1	4	112.96	12.08				
1-2	8	100.05	24.69				
1-3	13	107.56	22.27				
1-4	19	95.78	29.84				
1-5	24	102.66	24.49				
1-6	29	110.06	20.32				
2-1	3	102.60	15.20	31	12		
2-2	11	113.10	14.70	28	11	53	16
2-3	11	99.43	20.32				
2-4	16	111.12	19.88				
2-5	20.5	122.99	11.12				
2-6	22		17.71			11.8	
2-7a	25	90.35	34.88				
2-8	31	115.68	18.77				
2-9	36	126.33	13.32				
2-10	40					19.8	
2-11	45		18.91				
3-1	3	110.40	16.80	30	14	61.8	21
3-2	6	110.50	16.30	28	9	76.8	17
3-3	11	100.72	25.98				
3-5	21	92.96	30.37				
3-6	26	112.26	19.29				
4-1	3	112.42	6.85				
4-2	6	98.74	21.53				
4-3	11	105.66	23.44				
4-4	16					3.9	
4-6	24	110.57	21.29				
5-1	3	109.69	7.27				
5-2	6	90.50	23.00	33	13	87.7	21
5-3	11	103.72	24.09				
5-4	16					37.7	
5-6	26	110.68	21.15				
5-7	31	109.87	21.51				

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Black Lean CLAY w/ Sand & Gravel	31	19	12			
■	Dark Olive Brown Sandy Lean CLAY	28	17	11	78.7	53.0	CL
▲	Dark Olive Brown Sandy Lean CLAY	30	16	14	93.3	61.8	CL
◆	Brown Lean CLAY w/ Sand	28	19	9	99.2	76.8	CL
▼	Olive Brown Lean CLAY	33	20	13	96.3	87.7	CL

Project No. 740-170 **Client:** Tom Makdissy Consulting, Inc.

Project: The Edge - E321

● **Source:** 2-1 **Elev./Depth:** 3'

■ **Source:** 2-2 **Elev./Depth:** 11'(on tube)

▲ **Source:** 3-1 **Elev./Depth:** 3'

◆ **Source:** 3-2 **Elev./Depth:** 6'

▼ **Source:** 5-2 **Elev./Depth:** 6'

Remarks:

●

■

▲

◆

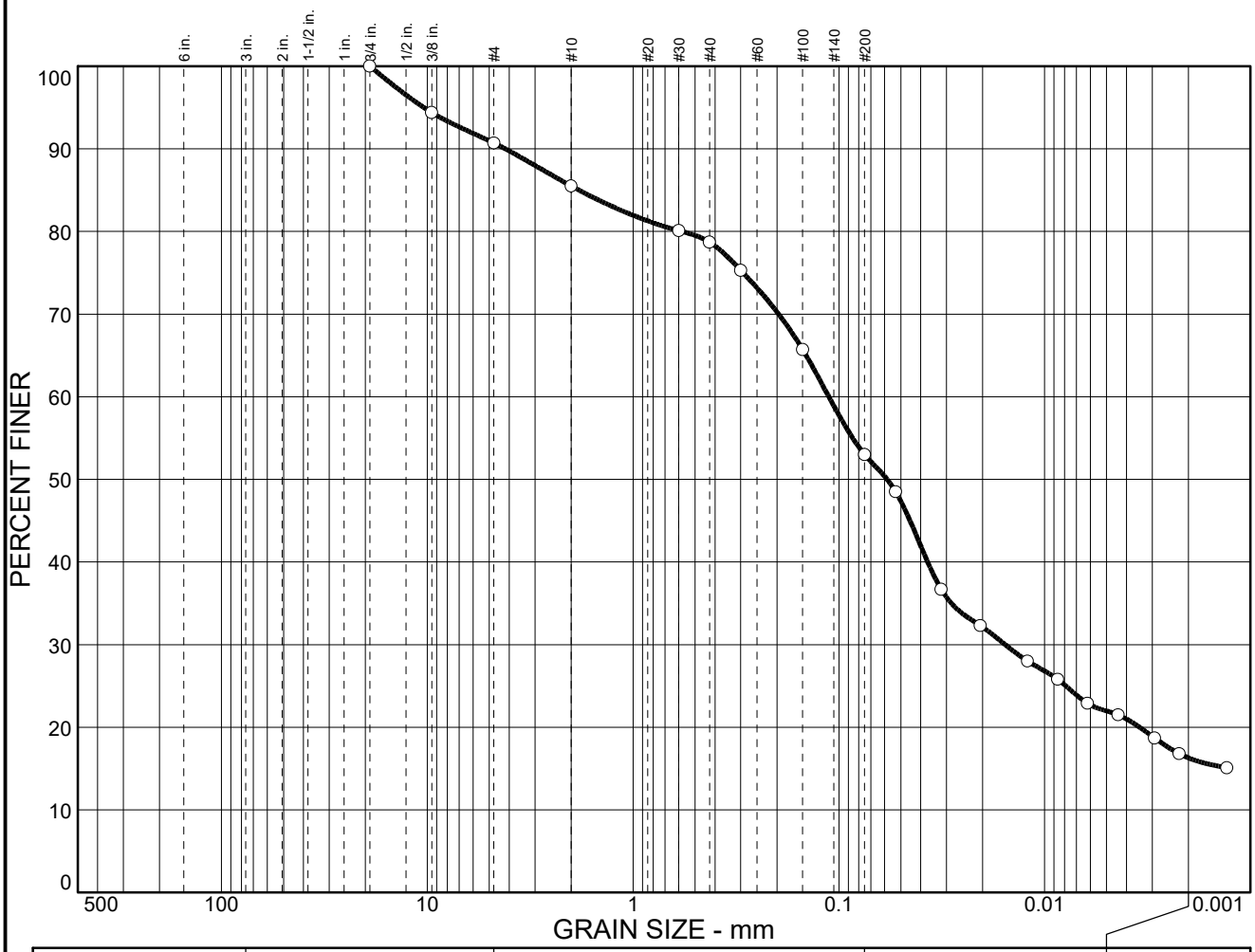
▼

LIQUID AND PLASTIC LIMITS TEST REPORT

COOPER TESTING LABORATORY

Figure

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	9.3	37.7	36.7	16.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4 in.	100.0		
3/8 in.	94.4		
#4	90.7		
#10	85.5		
#30	80.1		
#40	78.7		
#50	75.3		
#100	65.7		
#200	53.0		
#270	48.5		
0.0318 mm.	36.7		
0.0206 mm.	32.3		
0.0121 mm.	28.0		
0.0086 mm.	25.8		
0.0062 mm.	22.9		
0.0044 mm.	21.5		
0.0029 mm.	18.7		
0.0022 mm.	16.8		
0.0013 mm.	15.1		

* (no specification provided)

Soil Description

Dark Olive Brown Sandy Lean CLAY

Atterberg Limits

PL= 17 LL= 28 PI= 11

Coefficients

D_{85}= 1.83 D_{60}= 0.112 D_{50}= 0.0583
D_{30}= 0.0156 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO=

Remarks

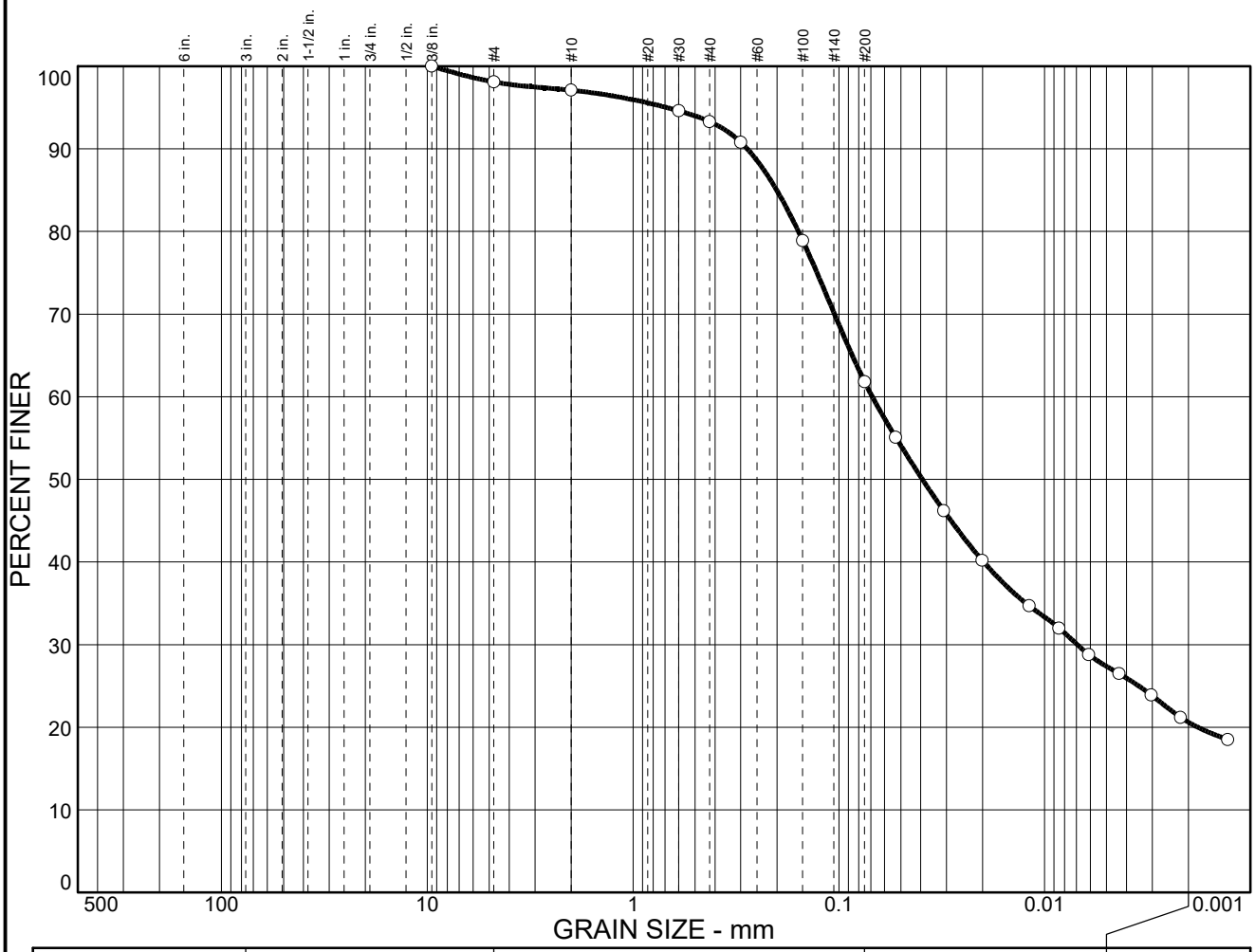
Sample No.: **Source of Sample:** 2-2 **Date:** 2/18/15
Location: **Elev./Depth:** 11'(on tube)

COOPER TESTING LABORATORY

Client: Tom Makdissy Consulting, Inc.
Project: The Edge - E321

Project No: 740-170 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	1.9	36.3	41.2	20.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8 in.	100.0		
#4	98.1		
#10	97.1		
#30	94.6		
#40	93.3		
#50	90.8		
#100	78.9		
#200	61.8		
#270	55.1		
0.0309 mm.	46.2		
0.0201 mm.	40.2		
0.0119 mm.	34.7		
0.0085 mm.	32.0		
0.0061 mm.	28.8		
0.0044 mm.	26.5		
0.0030 mm.	23.9		
0.0022 mm.	21.2		
0.0013 mm.	18.5		

* (no specification provided)

Soil Description

Dark Olive Brown Sandy Lean CLAY

Atterberg Limits

PL= 16 LL= 30 PI= 14

Coefficients

D_{85}= 0.201 D_{60}= 0.0689 D_{50}= 0.0393
D_{30}= 0.0069 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO=

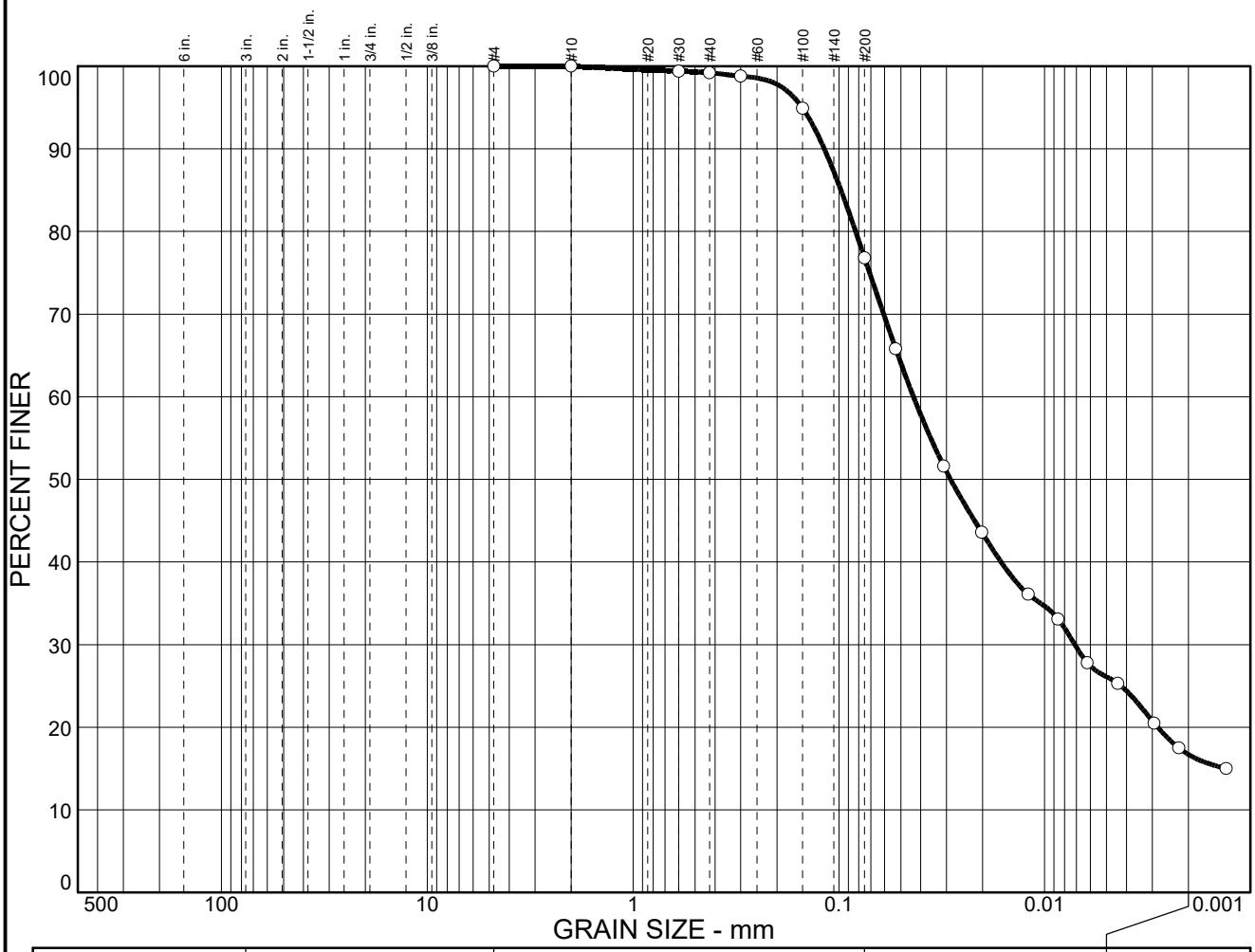
Remarks

Sample No.: **Source of Sample:** 3-1 **Date:**
Location: **Elev./Depth:** 3'

COOPER TESTING LABORATORY

Client: Tom Makdissy Consulting, Inc.
Project: The Edge - E321
Project No: 740-170 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	23.2	60.1	16.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	100.0		
#30	99.4		
#40	99.2		
#50	98.8		
#100	94.9		
#200	76.8		
#270	65.8		
0.0309 mm.	51.6		
0.0202 mm.	43.6		
0.0120 mm.	36.1		
0.0086 mm.	33.1		
0.0062 mm.	27.8		
0.0044 mm.	25.3		
0.0029 mm.	20.5		
0.0022 mm.	17.5		
0.0013 mm.	15.0		

* (no specification provided)

Soil Description

Brown Lean CLAY w/ Sand

Atterberg Limits

PL= 19 LL= 28 PI= 9

Coefficients

D_{85}= 0.0978 D_{60}= 0.0434 D_{50}= 0.0287
D_{30}= 0.0071 D_{15}= 0.0013 D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO=

Remarks

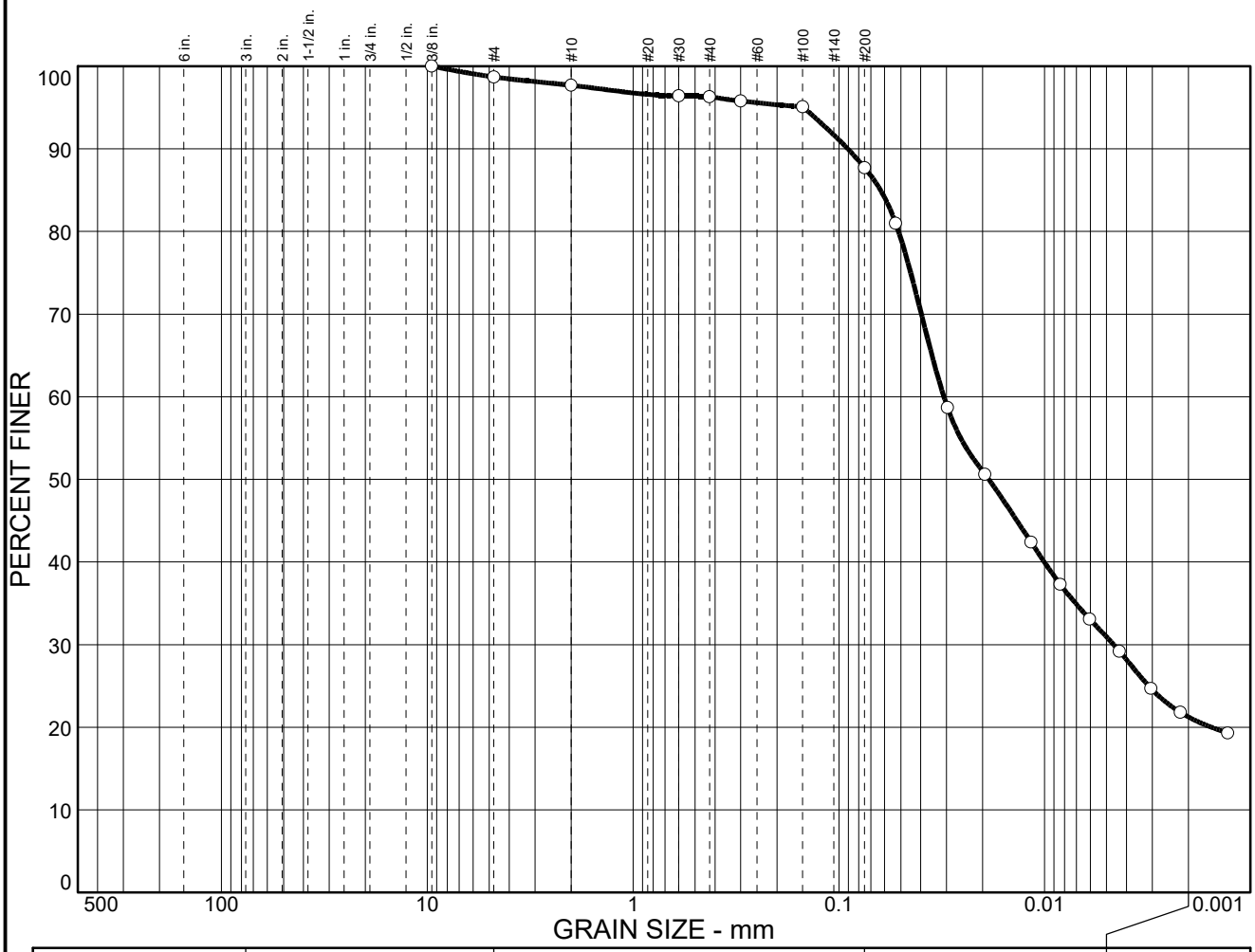
Sample No.: **Source of Sample:** 3-2 **Date:** 2/18/15
Location: **Elev./Depth:** 6'

COOPER TESTING LABORATORY

Client: Tom Makdissy Consulting, Inc.
Project: The Edge - E321

Project No: 740-170 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	1.3	11.0	66.5	21.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8 in.	100.0		
#4	98.7		
#10	97.7		
#30	96.4		
#40	96.3		
#50	95.8		
#100	95.1		
#200	87.7		
#270	81.0		
0.0297 mm.	58.7		
0.0195 mm.	50.6		
0.0117 mm.	42.4		
0.0084 mm.	37.3		
0.0060 mm.	33.1		
0.0043 mm.	29.2		
0.0030 mm.	24.7		
0.0022 mm.	21.8		
0.0013 mm.	19.3		

* (no specification provided)

Soil Description

Olive Brown Lean CLAY

Atterberg Limits

PL= 20 LL= 33 PI= 13

Coefficients

D_{85}= 0.0628 D_{60}= 0.0309 D_{50}= 0.0187
D_{30}= 0.0046 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO=

Remarks

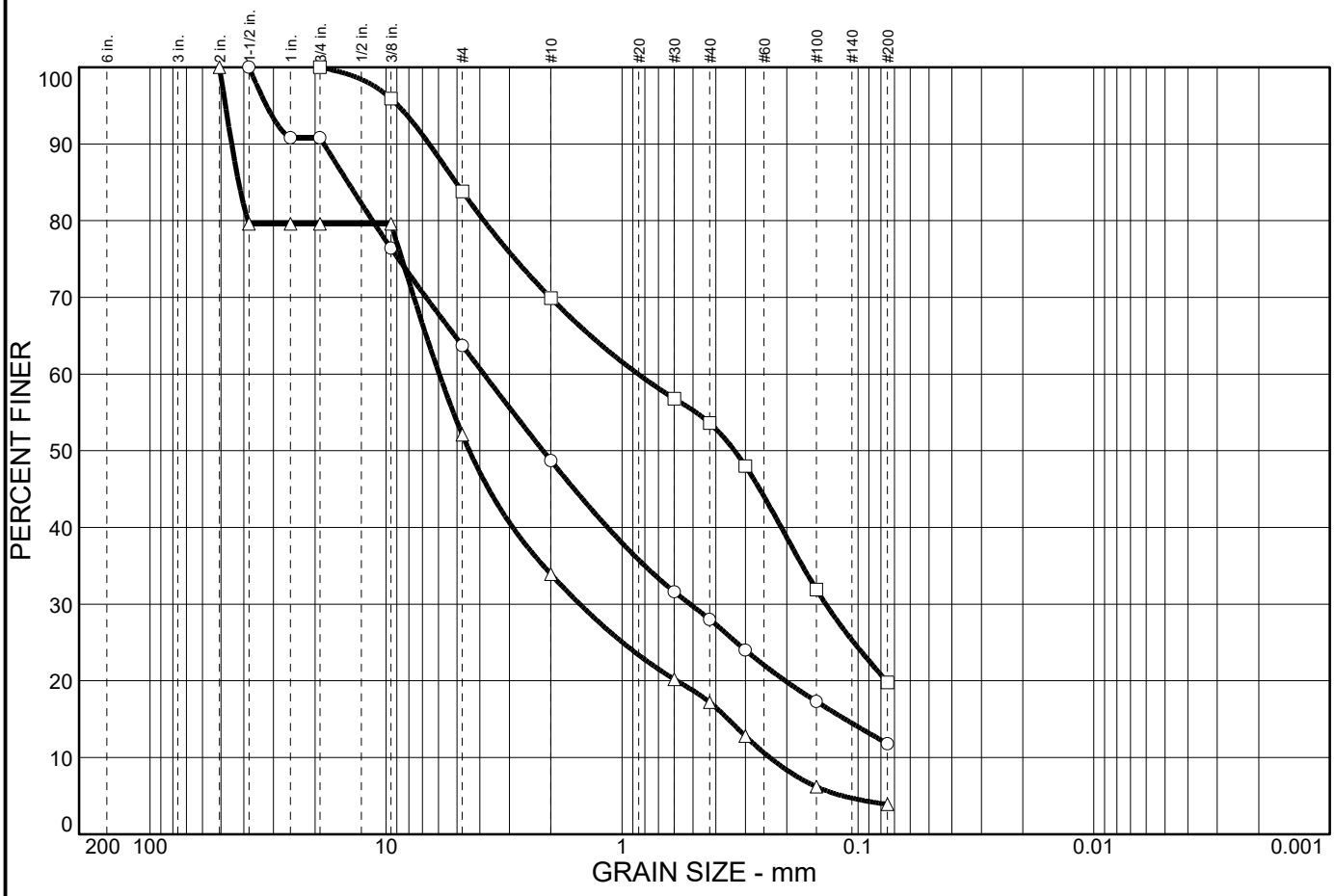
Sample No.: **Source of Sample:** 5-2 **Date:** 2/18/15
Location: **Elev./Depth:** 6'

COOPER TESTING LABORATORY

Client: Tom Makdissy Consulting, Inc.
Project: The Edge - E321

Project No: 740-170 **Figure**

Particle Size Distribution Report



	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
○		36.3	51.9	11.8					
□		16.2	64.0	19.8					
△		47.9	48.2	3.9					

SIEVE inches size	PERCENT FINER ○	□	△
2			100.0
1.5"	100.0		79.6
1"	90.8		79.6
3/4"	90.8	100.0	79.6
3/8	76.4	95.9	79.6
	GRAIN SIZE		
D_{60}	3.85	0.855	5.95
D_{30}	0.515	0.137	1.51
D_{10}			0.236
	COEFFICIENTS		
C_c			1.62
C_u			25.17

SIEVE number size	PERCENT FINER ○	□	△
#4	63.7	83.8	52.1
#10	48.7	69.9	33.9
#30	31.6	56.8	20.2
#40	28.0	53.6	17.2
#50	24.0	48.0	12.8
#100	17.3	31.9	6.2
#200	11.8	19.8	3.9

SOIL DESCRIPTION

○ Olive Gray Poorly Graded SAND w/ Silt & Gravel

□ Light Olive Brown Clayey SAND w/ Gravel

△ Olive Gray Well-Graded SAND w/ Gravel

REMARKS:

○

□ Due to the small sample size, relative to the largest particle size, this data should be considered to be approximate.

△ Due to the small sample size, relative to the largest particle size, this data should be considered to be approximate.

○ Source: 2-6 Elev./Depth: 22'

□ Source: 2-10 Elev./Depth: 40'

△ Source: 4-4 Elev./Depth: 16-16.5'

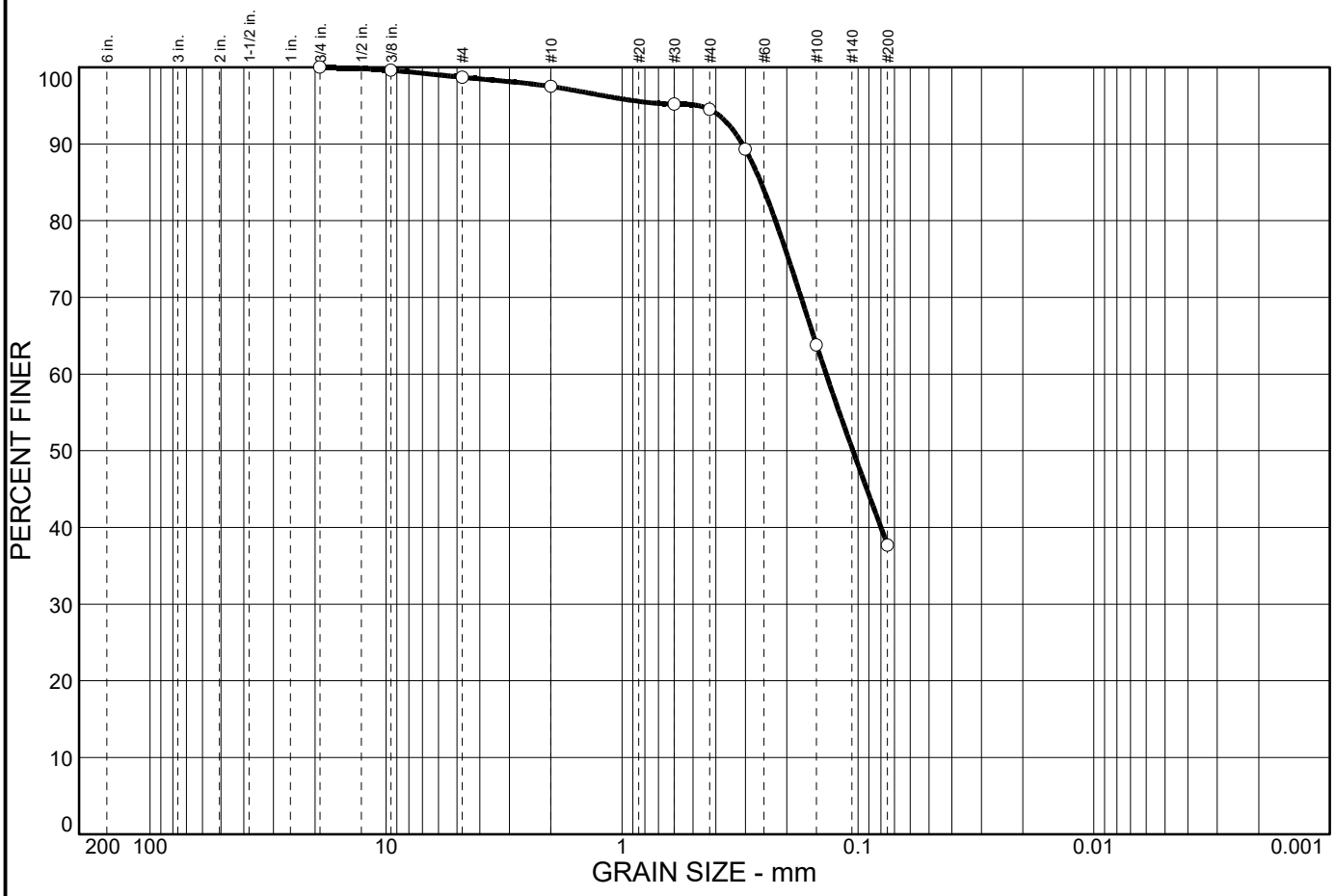
COOPER TESTING LABORATORY

Client: Tom Makdissy Consulting, Inc.

Project: The Edge - E321

Project No.: 740-170 Figure

Particle Size Distribution Report



	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
○		1.3	61.0	37.7					

SIEVE inches size	PERCENT FINER ○		
3/4"	100.0		
3/8"	99.6		
	GRAIN SIZE		
D_{60}	0.136		
D_{30}			
D_{10}			
	COEFFICIENTS		
C_c			
C_u			

SIEVE number size	PERCENT FINER ○		
#4	98.7		
#10	97.5		
#30	95.2		
#40	94.5		
#50	89.3		
#100	63.8		
#200	37.7		

SOIL DESCRIPTION

○ Olive Brown Silty SAND

REMARKS:

○

○ Source: 5-4

Elev./Depth: 16'(on tube)

COOPER TESTING LABORATORY

Client: Tom Makdissy Consulting, Inc.

Project: The Edge - E321

Project No.: 740-170

Figure

APPENDIX C

The Grading Specification
Rock Under Floor Slabs

THE GRADING SPECIFICATIONS
on
Proposed Residential Development
The Edge, Montague Expressway
Milpitas, California

1. General Description

1.1 These specifications have been prepared for the grading and site development of the subject residential development. ***T. Makdissy Consulting, Inc.***, hereinafter described as the Soil Engineer, should be consulted prior to any site work connected with site development to ensure compliance with these specifications.

1.2 The Soil Engineer should be notified at least two working days prior to any site clearing or grading operations on the property in order to observe the stripping of organically contaminated material and to coordinate the work with the grading contractor in the field.

1.3 This item shall consist of all clearing or grubbing, preparation of land to be filled, filling of the land, spreading, compaction and control of fill, and all subsidiary work necessary to complete the grading of the filled areas to conform with the lines, grades, and slopes as shown on the accepted plans. The Soil Engineer is not responsible for determining line, grade elevations, or slope gradients. The property owner, or his representative, shall designate the person or organizations who will be responsible for these items of work.

1.4 The contents of these specifications shall be integrated with the soil report of which they are a part, therefore, they shall not be used as a self-contained document.

2. Tests

The standard test used to define maximum densities of all compaction work shall be the ASTM D1557-12 (or latest edition) Laboratory Test Procedure. All densities shall be expressed as a relative compaction in terms of the maximum dry density obtained in the laboratory by the foregoing standard procedure.

3. Clearing, Grubbing, and Preparing Areas To Be Filled

3.1 If encountered, all vegetable matter, trees, root systems, shrubs, debris, and organic topsoil shall be removed from all structural areas and areas to receive fill.

3.2 If encountered, any soil deemed soft or unsuitable by the Soil Engineer shall be removed. Any existing debris or excessively wet soils shall be excavated and removed as required by the Soil Engineer during grading.

3.3 All underground structures shall be removed from the site such as old foundations, abandoned pipe lines, septic tanks, and leach fields.

3.4 The final stripped excavation shall be approved by the Soil Engineer during construction and before further grading is started.

3.5 After the site has been cleared, stripped, excavated to the surface designated to receive fill, and scarified, it shall be disked or bladed until it is uniform and free from large clods. The native subgrade soils shall be moisture conditioned and compacted to the requirements as specified in the grading section of this report. Fill can then be placed to provide the desired finished grades. The contractor shall obtain the Soil Engineer's approval of subgrade compaction before any fill is placed.

4. Materials

4.1 All fill material shall be approved by the Soil Engineer. The material shall be a soil or soil-rock mixture which is free from organic matter or other deleterious substances. The fill material shall not contain rocks or lumps over 6 inches in greatest dimension and not more than 15% larger than 2-1/2 inches. Materials from the site below the stripping depth are suitable for use in fills provided the above requirements are met.

4.2 Materials existing on the site are suitable for use as compacted engineered fill after the removal of all debris and organic material. All fill soils shall be approved by the Soil Engineer in the field.

4.3 Should import material be required, it should be approved by the soil Engineer before it is brought to the site.

5. Placing, Spreading, and Compacting Fill Material

5.1 The fill materials shall be placed in uniform lifts of not more than 8 inches in uncompacted thickness. Each layer shall be spread evenly and shall be thoroughly blade mixed during the spreading to obtain uniformity of material in each layer. Before compaction begins, the fill shall be brought to a water content that will permit proper compaction by either (a) aerating the material if it is too wet, or (b) spraying the material with water if it is too dry.

5.2 After each layer has been placed, mixed, and spread evenly, either import material or native material shall be compacted to a relative compaction designated for engineered fill.

5.3 Compaction shall be by footed rollers or other types of acceptable compacting rollers. Rollers shall be of such design that they will be able to compact the fill to the specified density. Rolling shall be accomplished while the fill material is within the specified moisture content range. Rolling of each layer shall be continuous over its entire area and the roller shall make sufficient trips to ensure that the required density has been obtained. No ponding or jetting shall be permitted.

5.4 Field density tests shall be made in each compacted layer by the Soil Engineer in accordance with Laboratory Test Procedure ASTM D1556-07 or ASTM D6938-10. When footed rollers are used for compaction, the density tests shall be taken in the compacted material below the surface disturbed by the roller. When these tests indicate that the compaction requirements on any layer of fill, or portion thereof, has not been met, the particular layer, or portion thereof, shall be reworked until the compaction requirements have been met.

5.5 No soil shall be placed or compacted during periods of rain nor on ground which contains free water. Soil which has been soaked and wetted by rain or any other cause shall not be compacted until completely drained and until the moisture content is within the limits hereinbefore described or approved by the Soil Engineer. Approval by the Soil Engineer shall be obtained prior to continuing the grading operations.

6. Pavement

6.1 The proposed subgrade under pavement sections, native soil, and/or fill shall be compacted to a minimum relative compaction of 95% at 3% above optimum moisture content for a depth of 12 inches.

6.2 All aggregate base material placed subsequently should also be compacted to a minimum relative compaction of 95% based on the ASTM Test Procedure D1557-12. The construction of the pavement in the parking and traffic areas should conform to the requirements set forth by the latest Standard Specifications of the Department of Transportation of the State of California and/or City of Milpitas, Department of Public Works.

6.3 It is recommended that soils at the proposed subgrade level be tested for a pavement design after the preliminary grading is completed and the soils at the site design subgrade levels are known.

7. Utility Trench Backfill

7.1 The utility trenches extending under concrete slabs-on-grade shall be backfilled with native on-site soils or approved import materials and compacted to the requirements pertaining to the adjacent soil. No ponding or jetting will be permitted.

7.2 Utility trenches extending under all pavement areas shall be backfilled with native or approved import material and properly compacted to meet the requirements set forth by the City of Milpitas, Department of Public Works.

7.3 Where any opening is made under or through the perimeter foundations for such items as utility lines and trenches, the openings must be resealed so that they are watertight to prevent the possible entrance of outside irrigation or rain water into the underneath portion of the structures.

8. Subsurface Line Removal

8.1 The methods of removal will be designated by the Soil Engineer in the field depending on the depth and location of the line. One of the following methods will be used.

8.2 Remove the pipe and fill and compact the soil in the trench according to the applicable portions of sections pertaining to compaction and utility backfill.

8.3 The pipe shall be crushed in the trench. The trench shall then be filled and compacted according to the applicable portions of Section 5.

8.4 Cap the ends of the line with concrete to prevent entrance of water. The length of the cap shall not be less than 5 feet. The concrete mix shall have a minimum shrinkage.

9. Unusual Conditions

9.1 In the event that any unusual conditions not covered by the special provisions are encountered during the grading operations, the Soil Engineer shall be immediately notified for additional recommendations.

10. General Requirements

Dust Control

10.1 The contractor shall conduct all grading operations in such a manner as to preclude windblown dirt and dust and related damage to neighboring properties. The means of dust control shall be left to the discretion of the contractor and he shall assume liability for claims related to windblown material.

GUIDE SPECIFICATIONS FOR ROCK UNDER FLOOR SLABS

Definition

Graded gravel or crushed rock for use under slabs-on-grade shall consist of a minimum thickness of mineral aggregate placed in accordance with these specifications and in conformance with the dimensions shown on the plans. The minimum thickness is specified in the accompanying report.

Material

The mineral aggregate shall consist of broken stone, crushed or uncrushed gravel, quarry waste, or a combination thereof. The aggregate shall be free from deleterious substances. It shall be of such quality that the absorption of water in a saturated dry condition does not exceed 3% of the oven dry weight of the sample.

Gradation

The mineral aggregate shall be of such size that the percentage composition by dry weight, as determined by laboratory sieves (U.S. Sieves) will conform to the following gradation:

Sieve Size	Percentage Passing
¾''	90-100
No. 4	25-60
No. 8	18-45
No. 200	0-3

Placing

Subgrade, upon which gravel or crushed rock is to be placed, shall be prepared as outlined in the accompanying soil report.

Appendix J

Operations and Maintenance (O&M) plan

APPENDIX I - BMP Operation and Maintenance Plan

Implementation of a long term Operation and Maintenance Plan (O&M) is necessary for the proper operation and maintenance of the stormwater control measures for the project. This O&M is intended to be a guide for the main items involved in BMP maintenance. Inspections, maintenance, and documentation will be the responsibility of the Home Owners Association.

This project is located in the southwestern part of the City of Milpitas, at the intersection of Piper Drive and Montague Expressway (see Figure 1). The project is located within the Milpitas Transit Area Specific Plan area. The project consists of a multi-story mixed use building and parking structure. A new 5 story wrap building, with 5 story parking structure, approximately 13,000 SF of ground level commercial/retail area and 381 upper level residential apartment units. The site improvements also include a new parking lot, medians, enhanced pavement, sidewalks, open space, utilities and landscaping. The total project area consists of 5.24 acres.

Stormwater will be treated using through the use of twenty-one biotreatment areas located around the perimeter of the building. Conveyance of stormwater runoff to biotreatment areas is made through gravity surface flow. Tributary areas, treatment areas, and treatment details are shown in attachment B of this O&M Plan.

A Responsibility for Maintenance

Pursuant to The Edge Declaration of Restrictions (CC&Rs), The Edge Homeowners Association will be is responsible for maintaining the storm water treatment measures. The CC&Rs provides that the HOA assumes the obligations of Stormwater Management facilities Operation and Maintenance Agreement between The Edge Project and the City of Milpitas. The executed agreement - after recorded – is included as Attachment A to this O&M plan. The CC&Rs further states maintenance of storm water facilities within the Development shall be in compliance with the Stormwater Control Operations and Maintenance Plan (this plan).

Individuals Responsible for Stormwater Treatment Bmp Operations and Maintenance
Facility Name: The Edge
Facility Address: 737 Montague Expressway
Designated Contact for Operation and Maintenance
Name: Ken Perry
Title: Facilities Manager

Phone: Direct |510-378-0278
Email: kenp@scsdevelopment.com
Off-hours or Emergency Contact
Phone: 510-378-0278 (Off-hour service is provided)

B. Organization Chart

A five member Board of Directors has selected Compass Management to be the professional property manager for The Edge Homeowners Association. Both the Board of Directors and selected property manager are subject to change in the future.

C. O&M Agreement

An Operation and Maintenance agreement between the City of Milpitas and Owner will be recorded with the County of Santa Clara prior to the final occupancy phase. The recorded document is included as attachment A to this O&M plan.

D. Means to Finance and Implement BMP Maintenance

Proper maintenance and operation of the stormwater management facilities identified in this SWCP will be the responsibility of the HOA to be established under this Project. The applicant will prepare and submit, for the City's review, an acceptable Stormwater Control Operation and Maintenance Plan prior to completion of construction, and will execute a Stormwater Management Facilities Operation and Maintenance Agreement before transfer or final occupancy at the site. The Applicant accepts responsibility for maintenance of stormwater management facilities until such responsibility is legally transferred to another entity.

E. Records

The Edge Home Owner's Association will maintain annual records of the operation and maintenance of BMP's identified in this O&M. The records will consist of inspections per the BMP Maintenance Schedule in this O&M. The reports will be available to the City upon request.

F. Summary of Drainage Areas and BMP's

A. Drainage Areas - A drawing showing the location and type of all treatment area is included on Attachment B.

B. Details of Treatment BMPs - Details of individual treatment BMP's are shown on Attachment B

G. BMP Maintenance Schedules

A. Summary of Inspection and Maintenance for all BMPs

A summary of inspection schedules are shown on Attachment C. Annual inspections shall be conducted during the months of September or October, prior to October 15 (prior to the rainy season). Bi-annual inspections shall be conducted during the months of September or October, and again during April (before April 15, end of the rainy season). Inspections shall be completed using the Inspection Maintenance Forms (Attachment D). Additional inspections may be required throughout the rainy season if excessive debris is found within the swales, or the swales do not drain completely in 48-hours after a rain event.

B. Service Agreement Information

Maintenance of the biofilter swale will be contracted for with a qualified landscape maintenance company. Maintenance of the stormwater pump system will be with a qualified stormwater compliance firm.

H. BMP Design Documents

A. Manufacturer's data, manuals, and maintenance requirements for pump – See Attachment E

ATTACHMENT A

RECORDED MAINTENANCE AGREEMENT BETWEEN CITY AND HOME OWNERS ASSOCIATION

ATTACHMENT B

MAP AND SUMMARY OF DRAINAGE AREAS, BMP'S, AND BMP DETAILS

Stormwater Treatment Area Sizing Table

Drainage Area ID	Total Area (ft^2)	Impervious Area (ft^2)	Pervious Area (ft^2)	Percent Impervious (%)	Required BMP Area (ft^2)	Provided BMP Area (ft^2)
TA1	11,860	9,730	2,130	82%	304	340
TA2	41,060	35,790	5,270	87%	1,109	1,170
TA3	10,415	8,195	2,220	79%	166	340
TA4	15,180	12,655	2,525	83%	399	401
TA5	5,600	4,350	1,250	78%	74	190
TA6	10,900	9,870	1,030	91%	178	360
TA7	1,610	735	875	46%	16	55
TA8	1,670	795	875	48%	26	55
TA9	2,460	1,620	840	66%	36	80
TA10	2,900	2,060	840	71%	2	115
TA11	16,090	14,400	1,690	89%	267	530
TA12	24,890	23,550	1,340	95%	626	690
TA13	5,940	5,030	910	85%	159	170
TA14	7,640	6,490	1,150	85%	131	250
TA15	6,450	5,800	650	90%	42	240
TA16	2,810	2,260	550	80%	27	100
TA17	8,650	6,750	1,900	78%	100	300
TA18	12,860	12,000	860	93%	294	330
TA19	5,485	4,885	600	89%	124	140
TA20	5,540	3,760	1,780	68%	73	185
TA21	660	400	260	61%	12	20
TA22	725	615	110	85%	9	25
TA23	640	460	180	72%	11	20
TA24	1,640	1,440	200	88%	44	47
TA25	940	810	130	86%	6	35
TA26	3,005	2,815	190	94%	84	85
TA27	495	475	20	96%	12	15
TA28	4,000	2,850	1,150	71%	80	120
TA29	8,090	0	8,090	0%	n/a	n/a
TA30	1,010	765	245	76%	11	35
POOL	2,600	2,600	0	100%	n/a	n/a

Note:
See Appendix F for complete BMP Sizing Calculations.

LEGEND

- BUILDING ROOF AREA
- BMP AREA
- CONCRETE
- POOL (GOES TO SEWER)
- DRAINAGE AREA
- XX — DRAINAGE AREA NUMBER
- TA(X) — BMP DESCRIPTION
- STORM DRAIN SYSTEM
- HP — HIGH POINT
- LP — LOW POINT
- CP — CATCH POINT
- DRAINAGE FLOW LINES

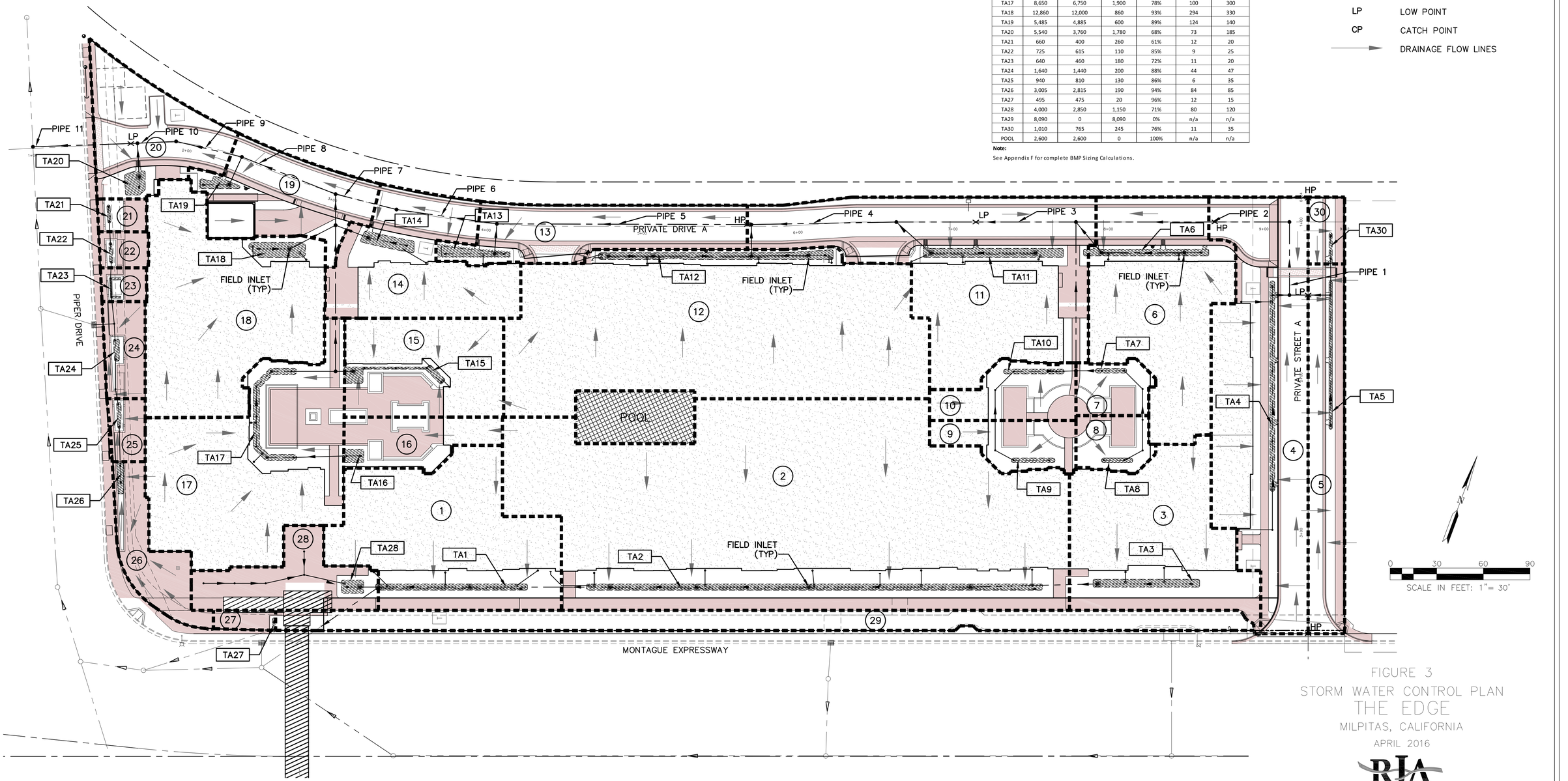


FIGURE 3
STORM WATER CONTROL PLAN
THE EDGE
MILPITAS, CALIFORNIA
APRIL 2016

RUGGERI-JENSEN-AZAR
ENGINEERS ▪ PLANNERS ▪ SURVEYORS
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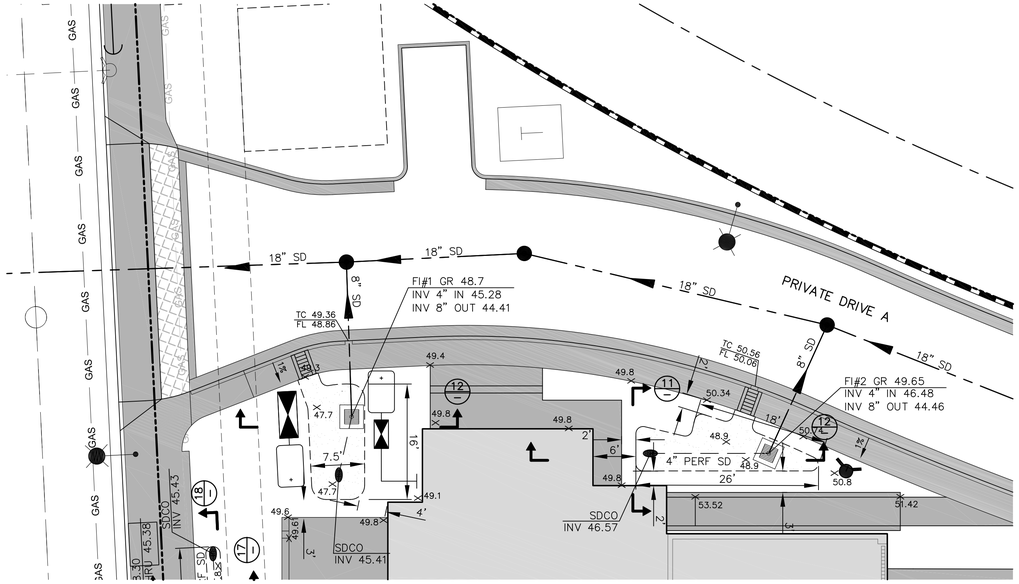
JOB NUMBER: 132003 SHEET 1 OF 1 SHEETS

PLOT DATE: April 8, 2016
FILE PATH: W:\Jobs 13\132003\Drawings\Final\Studies & Calculations\SWCP\Appendix G. Site Plan.dwg

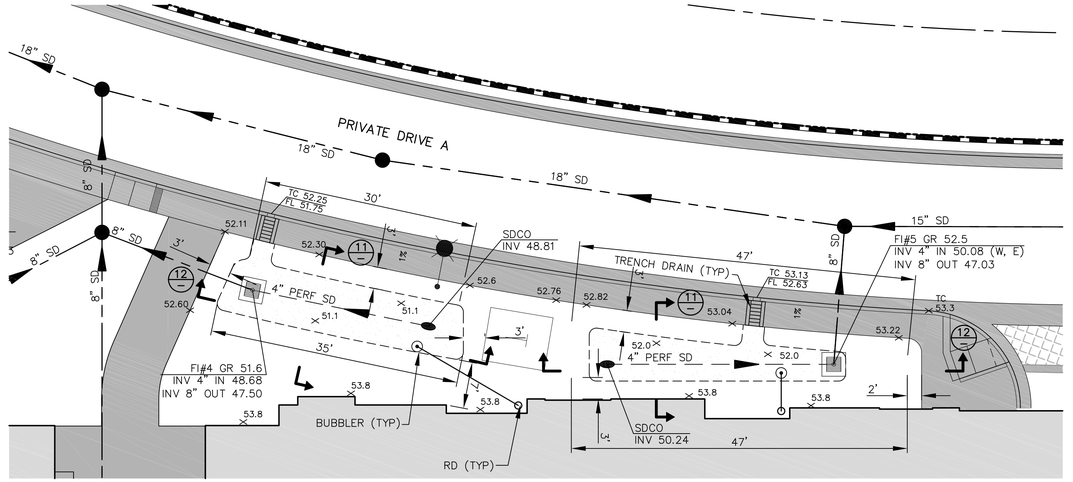


TA 20

TREATS DRAINAGE AREA 20
TREATMENT PROVIDED = 115 SF

TA 19

TREATS DRAINAGE AREA 19
TREATMENT PROVIDED = 140 SF

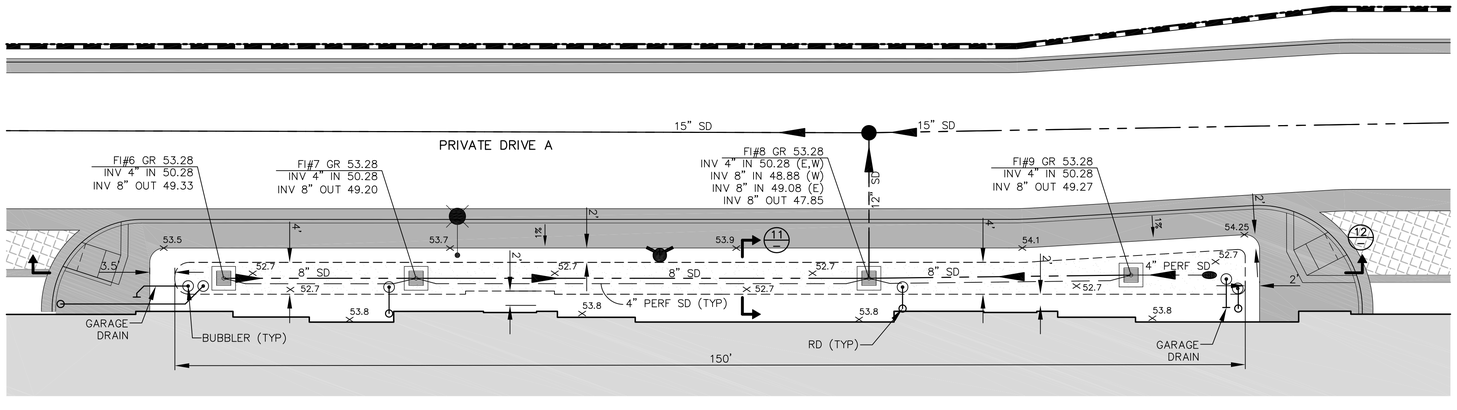


TA 14

TREATS DRAINAGE AREA 14
TREATMENT PROVIDED = 250 SF

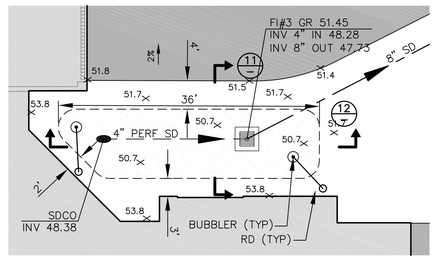
TA 13

TREATS DRAINAGE AREA 13
TREATMENT PROVIDED = 170 SF



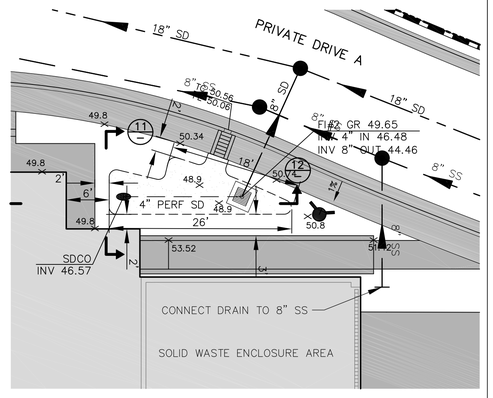
TA 12

TREATS DRAINAGE AREA 12
TREATMENT PROVIDED = 690 SF



TA 18

TREATS DRAINAGE AREA 18
TREATMENT PROVIDED = 330 SF



SOLID WASTE AREA

REFER TO APPENDIX H FIGURE 2 FOR DETAILS

N

0 10 20 30

SCALE IN FEET: 1"= 10'

FIGURE 1.1

BMP BLOWUPS

THE EDGE

MILPITAS, CALIFORNIA

APRIL 2015

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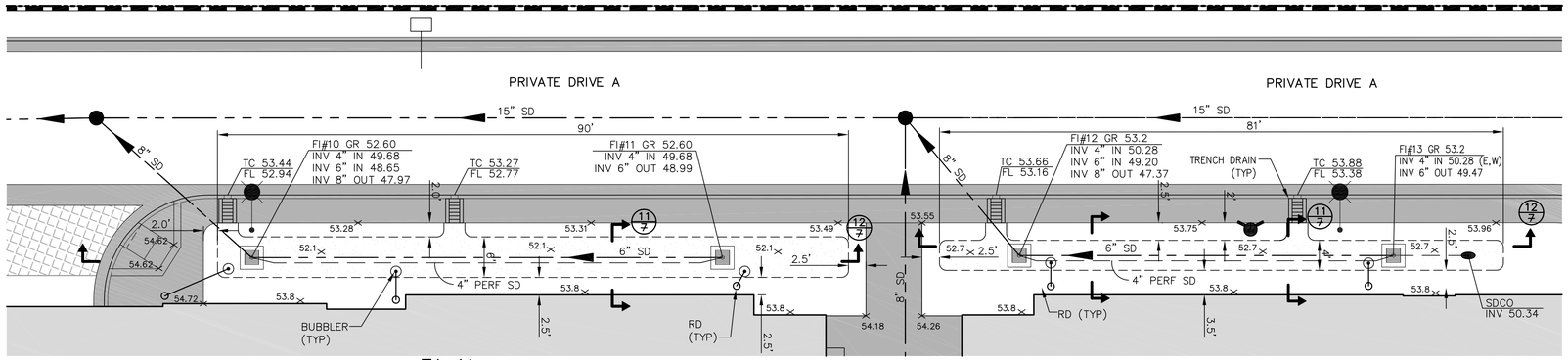
JOB NUMBER: 132003 SHEET 1 OF 3 SHEETS

PLOT DATE: April 18, 2016
FILE PATH: W:\Jobs 13\132003\Drawings\Final\Studies & Calculations\SWCP\Appendix H Blow-Ups.dwg

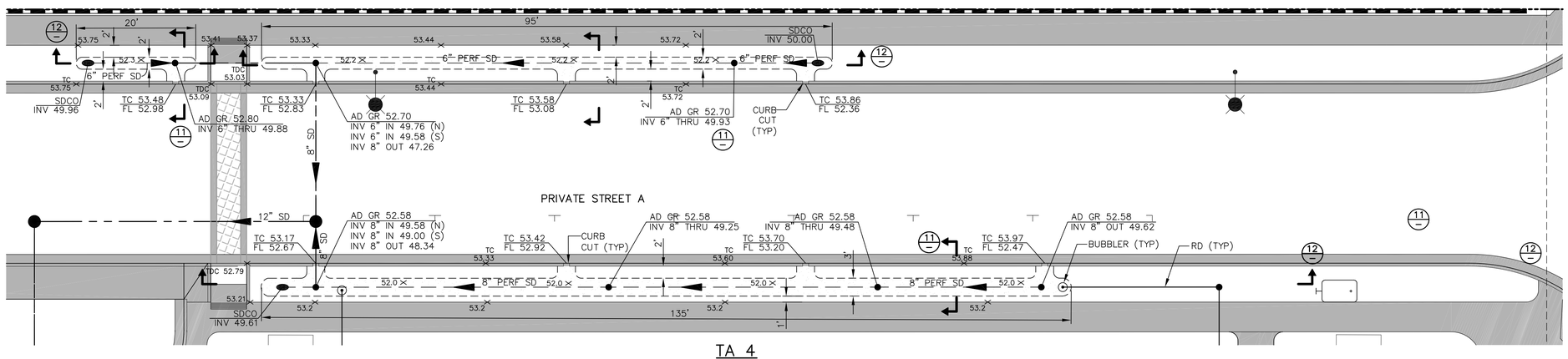


TA 11
TREATS DRAINAGE AREA 11
TREATMENT PROVIDED = 530 SF

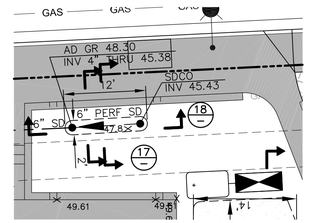
TA 6
TREATS DRAINAGE AREA 6
TREATMENT PROVIDED = 360 SF

TA 30
TREATS DRAINAGE AREA 30
TREATMENT PROVIDED = 35 SF

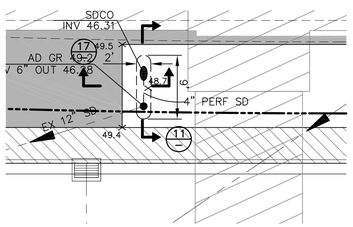
TA 5
TREATS DRAINAGE AREA 5
TREATMENT PROVIDED = 190 SF



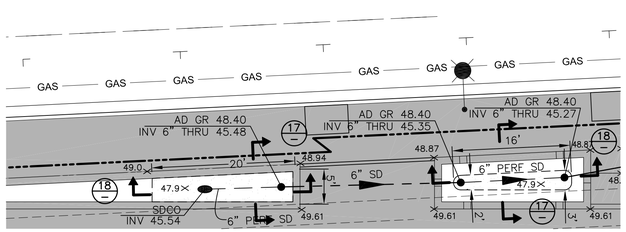
TA 4
TREATS DRAINAGE AREA 4
TREATMENT PROVIDED = 400 SF



TA 21
TREATS DRAINAGE AREA 21
TREATMENT PROVIDED = 20 SF

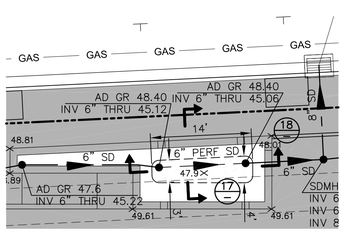


TA 27
TREATS DRAINAGE AREA 27
TREATMENT PROVIDED = 15 SF

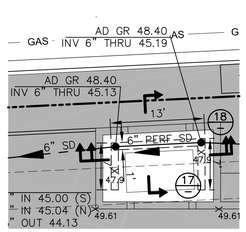


TA 26
TREATS DRAINAGE AREA 26
TREATMENT PROVIDED = 85 SF

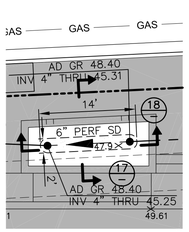
TA 25
TREATS DRAINAGE AREA 25
TREATMENT PROVIDED = 35 SF



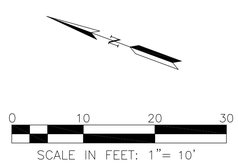
TA 24
TREATS DRAINAGE AREA 24
TREATMENT PROVIDED = 47 SF



TA 23
TREATS DRAINAGE AREA 23
TREATMENT PROVIDED = 20 SF



TA 22
TREATS DRAINAGE AREA 22
TREATMENT PROVIDED = 25 SF



REFER TO APPENDIX H FIGURE 2 FOR DETAILS

FIGURE 1.2

BMP BLOWUPS

THE EDGE

MILPITAS, CALIFORNIA

APRIL 2015

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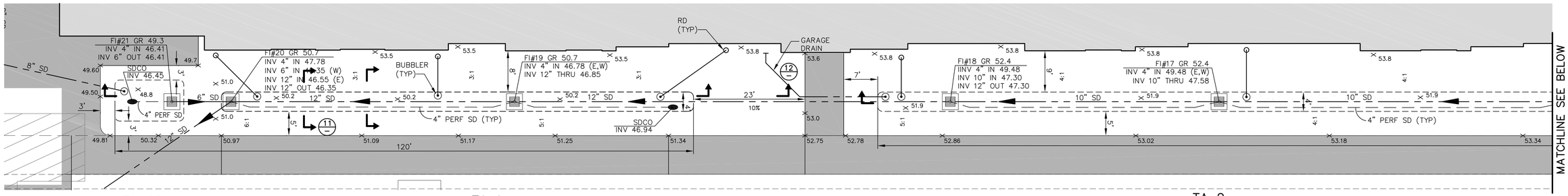
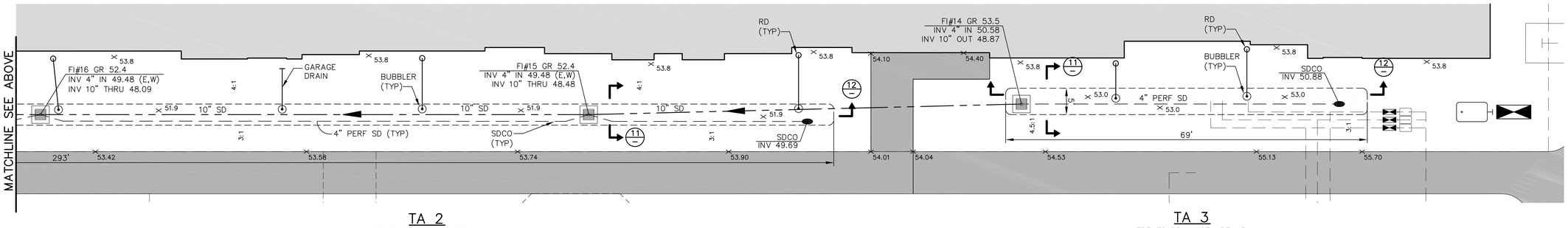
PLOT DATE: April 8, 2016
FILE PATH: W:\Jobs 13\132003\Drawings\Final\Studies & Calculations\SWCP\Appendix H. Blow-Ups.dwg



TA 28
TREATS DRAINAGE AREA 28
TREATMENT PROVIDED = 120 SF

TA 1
TREATS DRAINAGE AREA 1
TREATMENT PROVIDED = 340 SF

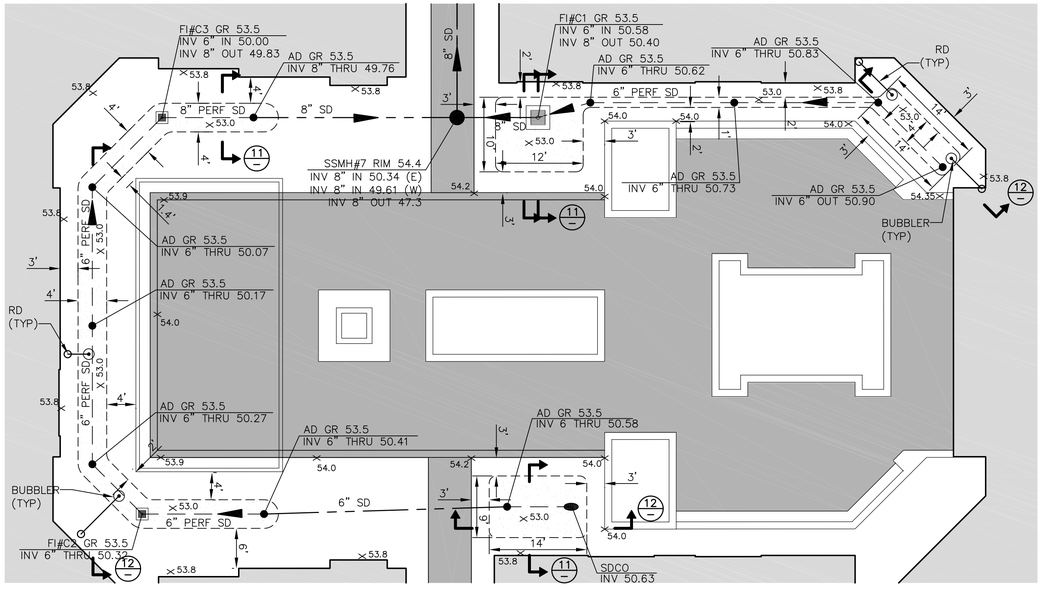
TA 2
TREATS DRAINAGE AREA 2
TREATMENT PROVIDED = 1170 SF



TA 2
TREATS DRAINAGE AREA 2
TREATMENT PROVIDED = 1170 SF

TA 3
TREATS DRAINAGE AREA 3
TREATMENT PROVIDED = 340 SF

TA 15
TREATS DRAINAGE AREA 15
TREATMENT PROVIDED = 240 SF

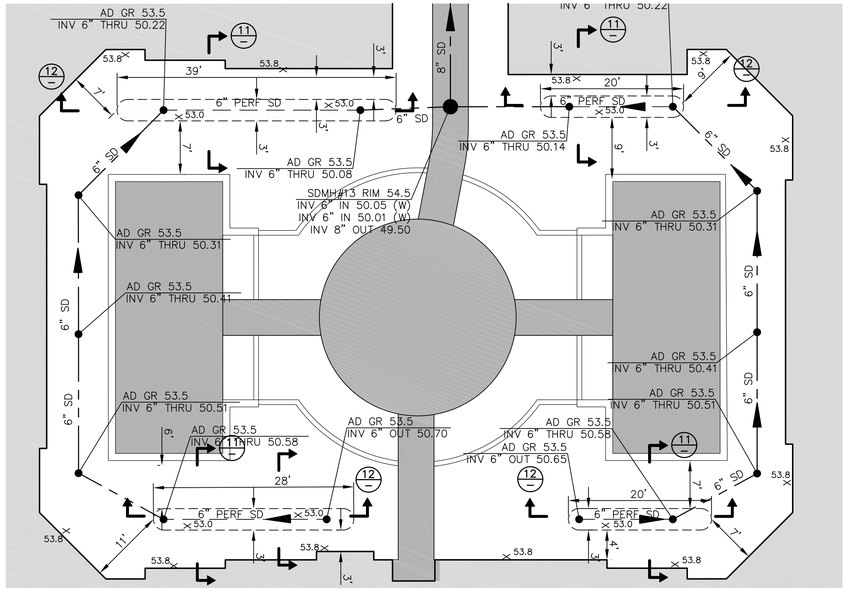


TA 17
TREATS DRAINAGE AREA 17
TREATMENT PROVIDED = 300 SF

TA 16
TREATS DRAINAGE AREA 16
TREATMENT PROVIDED = 100 SF

TA 10
TREATS DRAINAGE AREA 10
TREATMENT PROVIDED = 115 SF

TA 7
TREATS DRAINAGE AREA 7
TREATMENT PROVIDED = 55 SF



TA 9
TREATS DRAINAGE AREA 9
TREATMENT PROVIDED = 80 SF

TA 8
TREATS DRAINAGE AREA 8
TREATMENT PROVIDED = 55 SF

REFER TO APPENDIX H FIGURE 2 FOR DETAILS

N

0 10 20 30

SCALE IN FEET: 1"= 10'

FIGURE 1.3

BMP BLOWUPS
THE EDGE
MILPITAS, CALIFORNIA
APRIL 2015

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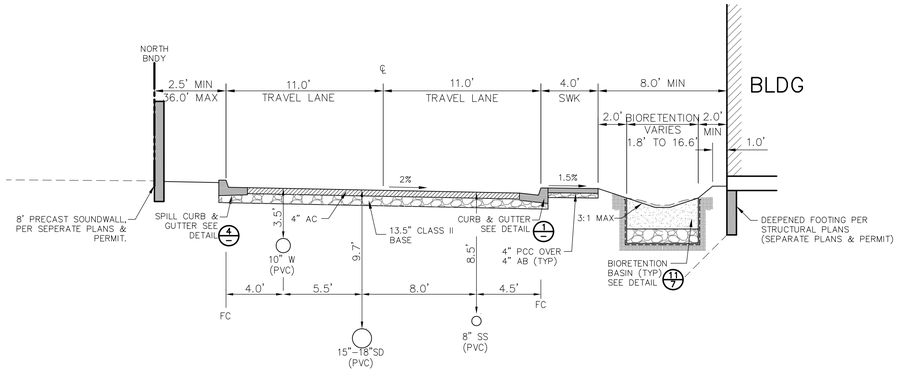
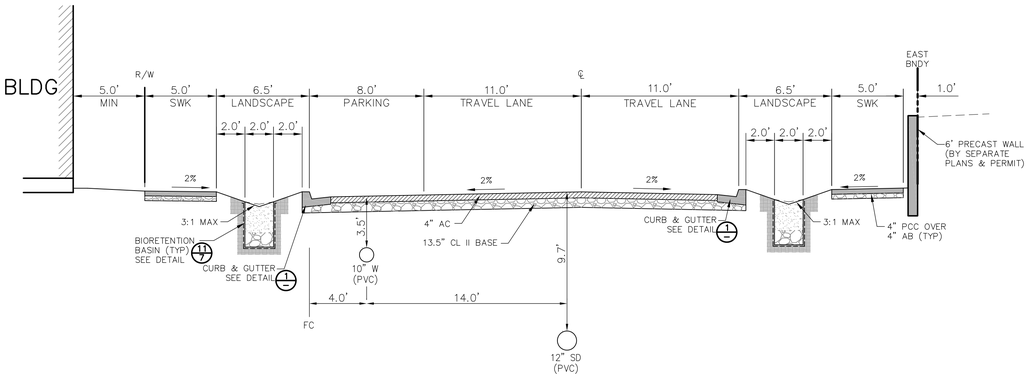
JOB NUMBER: 132003 SHEET 3 OF 3 SHEETS

PLOT DATE: April 8, 2016
FILE PATH: W:\Jobs (13)\132003\Drawings\Final\Studies & Calculations\SWCP\Appendix H Blow-Ups.dwg



A/— PRIVATE DRIVE A
NO SCALE



B/— PRIVATE STREET A
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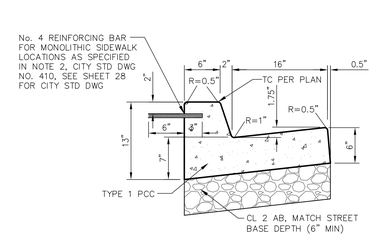
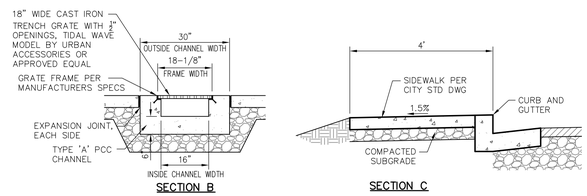
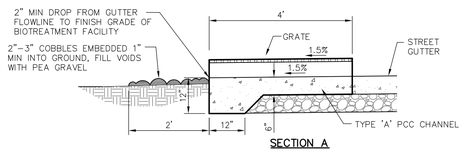
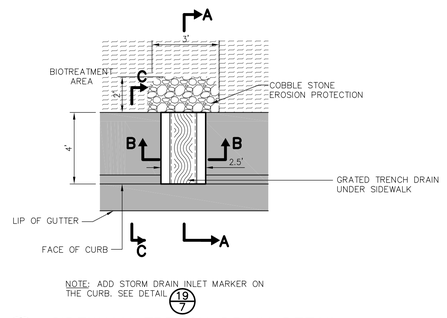


NOTE:
THIS DETAIL IS PROVIDED FOR INFORMATION ONLY. REFER TO CITY STD DWG NO. 410

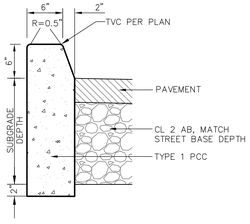
1/— CURB & GUTTER DETAIL
NO SCALE



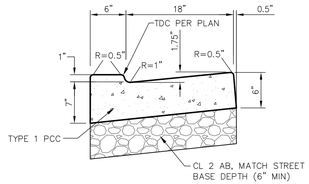




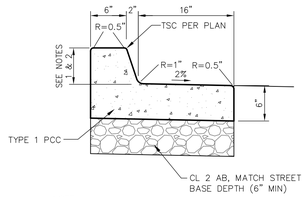
6/— SIDEWALK TRENCH DRAIN DETAIL
NOT TO SCALE



2/— VERTICAL CURB DETAIL
NO SCALE

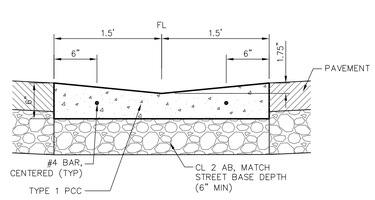


3/— DEPRESSED CURB & GUTTER DETAIL
NO SCALE

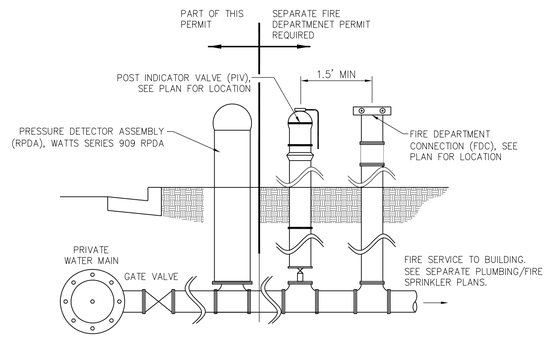


NOTE:
1. CURB HEIGHT IS 6" UNLESS OTHERWISE NOTED ON PLAN. ALTERNATIVE CURB HEIGHT WILL BE DENOTED BY PARENTHESIS, E.G. TSC 32.00(1.5")
2. CURB HEIGHT SHALL BE 0.5" HIGH AT PEDESTRIAN CROSSINGS WITH A 1:2 MAX BEVEL PER CBC SECTION 1133B.7.4.

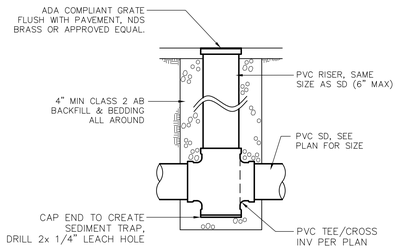
4/— SPILL CURB & GUTTER DETAIL
NO SCALE



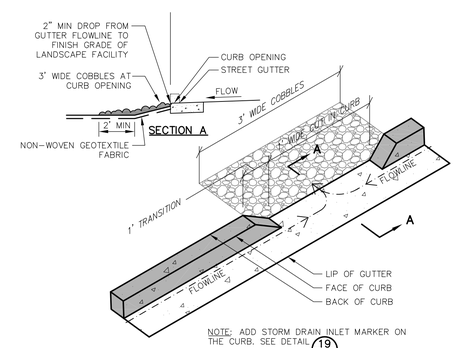
5/— VALLEY GUTTER DETAIL
NO SCALE



7/— PIV/FDC DETAIL
NO SCALE



8/— PAVEMENT AREA DRAIN DETAIL
NO SCALE



9/— CURB CUT DETAIL
NOT TO SCALE

FIGURE 2.1

STORM WATER CONTROL PLAN DETAILS

THE EDGE

MILPITAS, CALIFORNIA

APRIL 2015

RUGGERI-JENSEN-AZAR
ENGINEERS ▪ PLANNERS ▪ SURVEYORS
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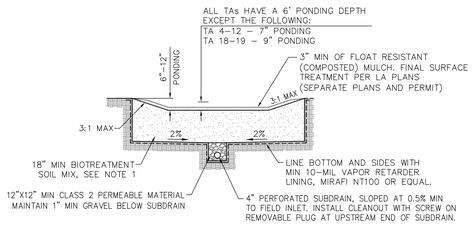
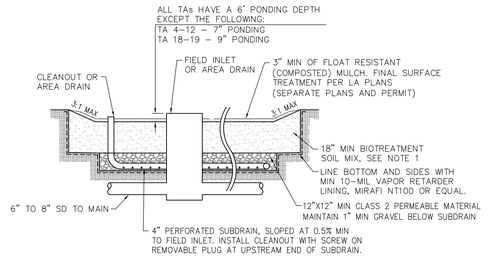
JOB NUMBER: 132003 SHEET 1 OF 2 SHEETS

PLOT DATE: April 5, 2016
FILE PATH: W:\Jobs 13\132003\Drawings\Final\Studies & Calculations\SWCP\Appendix H.Details.dwg



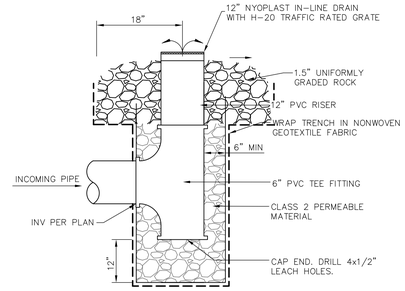
NOTES:
1. ENGINEERED TOP SOIL SHALL ADHERE TO THE SAN FRANCISCO REGIONAL WATER QUALITY CONTROL BOARD SPECIFICATIONS FOR BIORETENTION SOIL MIX AND CONTAIN THE FOLLOWING PROPERTIES: 5-10 IN/HR MIN INFILTRATION RATE, 60-70% CLEAN SAND, & 30-40% CERTIFIED COMPOST.
2. SEE LANDSCAPE DRAWINGS FOR BIOSWALE PLANTINGS AND IRRIGATION.

(11) BIORETENTION BASIN TYPICAL SECTION
NO SCALE

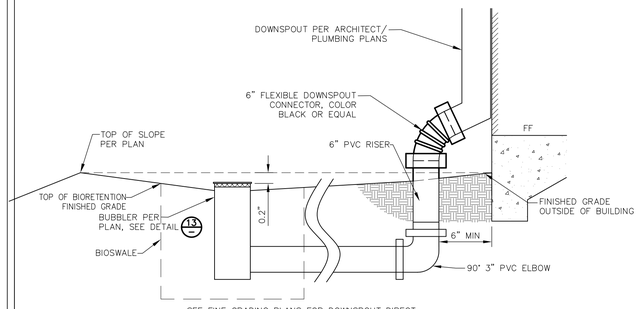


NOTES:
1. ENGINEERED TOP SOIL SHALL ADHERE TO THE SAN FRANCISCO REGIONAL WATER QUALITY CONTROL BOARD SPECIFICATIONS FOR BIORETENTION SOIL MIX AND CONTAIN THE FOLLOWING PROPERTIES: 5-10 IN/HR MIN INFILTRATION RATE, 60-70% CLEAN SAND, & 30-40% CERTIFIED COMPOST.
2. SEE LANDSCAPE DRAWINGS FOR BIOSWALE PLANTINGS AND IRRIGATION.

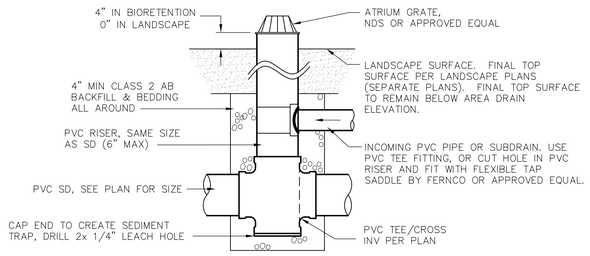
(12) BIORETENTION BASIN LONGITUDINAL SECTION
NO SCALE



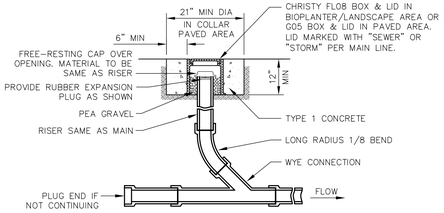
(13) BIORETENTION BASIN BUBBLER DETAIL
NO SCALE



(14) DOWNSPOUT CONNECTION TO BUBBLER DETAIL
NO SCALE
(SEE DETAIL 13, THIS SHEET)



(15) LANDSCAPE AREA DRAIN DETAIL
NO SCALE



(16) CLEANOUT DETAIL
NO SCALE

FIGURE 2.2

STORM WATER CONTROL PLAN DETAILS
THE EDGE
MILPITAS, CALIFORNIA
APRIL 2015

RUGGERI-JENSEN-AZAR
ENGINEERS ▪ PLANNERS ▪ SURVEYORS
8055 CAMINO ARROYO GILROY, CA 95020
PHONE: (408) 848-0300 FAX: (408) 848-0302

JOB NUMBER: 132003 SHEET 2 OF 2 SHEETS

PLOT DATE: April 8, 2016
FILE PATH: W:\Jobs (13)\132003\Drawings\Final\Studies & Calculations\SWCP\Appendix H Details.dwg

ATTACHMENT C

SUMMARY OF INSPECTION AND MAINTENANCE OF ALL BMP'S

ATTACHMENT C - Summary of Inspection and Maintenance for all BMPs

BMP Inspection and Maintenance Schedule		
BMP	**Maintenance Operations**	
Storm Drain System	• Inspect the storm drain system (including area drains, roof drains and bubblers), at the beginning and end of the rainy season. • Remove any sediment, trash, litter, rocks, and branches from surface gutters/channels and storm drain inlets. • Flush storm drain pipes as necessary to remove sediment and debris to ensure full pipe capacity. • Properly dispose of all sediment and debris according to State and City regulations.	Twice Annually at the beginning (October) and end (April) of the rainy season.
Vector Control	• Abate any potential vectors by filling ground holes in and around the BMPs, and by insuring there are no areas where water stands longer than 48 hours following a storm. • Contact the Santa Clara County Vector Control District for information and advice if mosquito larvae are present and persistent. • Mosquito larvicides should be applied only when absolutely necessary and by a licensed contractor.	As needed.
General Landscape	• Collect lawn and garden clippings, pruning waste, and tree trimming. Chip if necessary, and compost or take to the local municipal yard waste recycling center.	During each landscape maintenance visit when applicable

Bioretention Bioswales /	• Place mulch layer to ensure BMP is effective and attractive. Plants must remain healthy and trimmed if overgrown. Level of mulch must always remain below curb elevation per original design.	During each landscape maintenance visit when applicable
	• Inspect vegetation. Prune and weed the bioretention area. Replace dead plants. Treat diseased plants as needed.	During each landscape maintenance visit when applicable
	• Soils must be maintained to efficiently filter the stormwater. Inspect and correct any potential erosion. Remove any accumulated trash and debris.	Anytime as needed. Minimum twice per year, once before (October) and once after (April) the rainy season.
	• Inspect for sediment and debris. Use a commercially available regenerative air or vacuum sweepers to remove sediment and debris.	Twice per year, once before (October) and once after (April) the rainy season
	• Inspect subdrain system, cleanouts, area drains, and overflow field inlets. Remove any accumulated trash, debris, and accumulated sediment.	Twice per year, once before (October) and once after (April) the rainy season
	• Reconstruct portions of bioretention area if routine maintenance does not maintain infiltration rates and eliminate prolonged ponding.	Anytime as needed. Minimum twice per year, once before (October) and once after (April) the rainy season

ATTACHMENT D

MAINTENANCE LOG

APPENDIX D – Stormwater BMP Inspection and Maintenance Log

Submit the Operations and Maintenance Inspection reports, Maintenance Plan, and Inspection and Maintenance Checklist for each BMP to: City of Milpitas, 455 E. Calaveras Blv, Milpitas, CA 95035, ATTN: Utility Engineer

Facility Name	
Address	
Begin Date	End Date

Date	BMP ID#	BMP Description ID	Inspected by:	Cause for Inspection	Exceptions Noted (Write ID code-see potential inspection results)	Comments and Actions Taken

Instructions: Record all inspections and maintenance for all treatment BMPs on this form. Use additional log sheets and/or attach extended comments or documentation as necessary. Submit a copy of the completed log with the annual independent inspectors' report to the municipality, and start a new log at that time.

- BMP ID# — Always use ID# from the Operation and Maintenance Manual.
- Inspected by — Note all inspections and maintenance on this form, including the required independent annual inspection.
- Cause for inspection — Note if the inspection is routine, pre-rainy-season, post-storm, annual, or in response to a noted problem or complaint.
- Exceptions noted — Note any condition that requires correction or indicates a need for maintenance. Write ID code per potential inspection results
- Comments and actions taken — Describe any maintenance done and need for follow-up.

Potential Inspection Results with Definitions

ID	Inspection Results	Definitions
I. All BMP Types		
1	No Visible/Apparent Problems	No visible or apparent problems with BMP function. BMP appears to be well-maintained.
2	Significant Engineering/Design Flaws	BMP observed to have significant engineering/design flaws which lessen its effectiveness as a stormwater treatment measure.
3	Unauthorized Modifications	Any modification that lessens the effectiveness of the BMP; any modification not authorized by the City, designated agency or other regulatory agency.
4	BMP Destroyed or Eliminated	BMP destroyed, removed or eliminated from property.
5	Trash/Debris Accumulation or Dumping	Trash & debris accumulates within and/or on BMP; trash & debris interferes with proper BMP function; visual evidence of trash/debris dumping.
6	Evidence of Contamination & Pollution	Evidence or presence of oil, gasoline, contaminants or other pollutants.
7	BMP Access Obstructed	Access to BMP obstructed or limited
8	Obnoxious Odors	Unpleasant odors within/from BMP
9	Fencing- Missing or Broken Bars	Any defect in or damage to the fence or gate that permits easy entry to a facility.
10	BMP Cannot Be Located	BMP cannot be located for the inspection
II. Biofiltration		
A. General		
11	Uneven or Clogged Flow Spreader	Flow spreader uneven or clogged so that flows are not uniformly distributed across the BMP.
12	Leaking or Malfunctioning Irrigation System	Irrigation system leaking or malfunctioning
B. Sediment and Erosion Problems		
13	Sediment Accumulation	Sediment depth exceeds 2 inches on more that 10% of the vegetated treatment area; or sediment interferes with BMP performance.
14	Erosion/Scouring	Eroded or scoured areas due to flow channelization, higher flows, wind or water.
C. Vegetation Maintenance Issues		
15	Poor Vegetation Coverage	Planted vegetation is sparse or bare or eroded patches occur in more than 10% of the BMP. Growth of planted vegetation is poor because sunlight does not reach swale.
16	Invasive/Nuisance Vegetation or Weeds	Planted vegetation is excessively tall; nuisance weeds, invasive or noxious vegetation are overgrown; vegetation reduces free movement of water through BMP.
17	Tree/Brush Growth	Growth does not allow maintenance access or interferes with maintenance activity
D. Drainage Problems		
18	Standing Water/Excessive Ponding/Soggy Soil	Water is observed within the BMP (between storms) and appears not to drain freely or soil is excessively soggy. Excessive ponding of water within vegetated swale or other BMP.
19	Mosquito Habitat	Suitable habitat exists for mosquito production (e.g., standing water for more than 72 hours in areas accessible to mosquitos).
20	Clogged or Obstructed Inlets/Outlets	Inlet/outlet clogged or obstructed with sediment and/or debris.
21	Constant Baseflow/Damage	Small quantities of water flow through the vegetated swale, even when it has been dry for weeks, and an eroded, muddy channel has formed in the swale bottom, constant baseflow from irrigation runoff.

Appendix K

3rd Party Certification

Schaaf & Wheeler
CONSULTING CIVIL ENGINEERS

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April 15, 2016

City of Milpitas
455 E Calaveras Blvd.
Milpitas, CA, 95035

Subject: McCarthy Ranch Industrial Park SWMP 3rd Party Certification

To Whom it May Concern:

At the request of SCS Development, we have performed a third-party review of the Stormwater Management Plan and Civil Engineering Plans for The Edge development dated April 2016, developed by Ruggeri-Jensen-Azar & Associates (Engineer). The project includes a 5.2 acre development of commercial/residential mixed use complex with residences and commercial /retail space.

The project consists of a multi-story mixed use building and parking structure. A new 5 story wrap building, with 5 story parking structure, approximately 13,000 sf of ground level commercial/retail area and 381 upper level residential apartment units. The site improvements also include a new parking lot, medians, enhanced pavement, sidewalks, open space, utilities and landscaping at 1801 McCarthy Boulevard in Milpitas. The project is located in the Coyote Creek Watershed, draining to Lower Penitencia Creek.

We reviewed the following submittals with regard to this project:

- The Storm Water Control Plan (SWCP) dated April 2016 which includes:
  - Project Narrative
  - C.3 Data Forms
  - Treatment measure sizing calculations
- The following plan sheets:
  - Figures 1.1-1.3 BMP Blowups
  - Figures 2.1-2.2 Storm Water Control Plan Details
  - Figure 3 Stormwater Control Plans
  - L28-L34 Landscaping Plans and Plant List
- The following reports:
  - Geotechnical Report
  - Operation and Maintenance Report

We reviewed the project submittals for compliance with the stormwater requirements in the NPDES Municipal Regional Stormwater Permit (Order No. R2-2015-0049) provision C.3 and the City's Municipal Code section XI-16-6.

1. Applicability of NPDES Permit Provision C.3 Requirements
There is a total of 188,210 sf of replaced impervious area, which is greater than the 10,000 square foot threshold. Therefore, C.3 source control, site design and treatment requirements **do** apply to this

project. The project did not receive final discretionary approval before 12/1/2011, therefore it must use LID treatment measures to treat 100% of the runoff as determined by section C.3.d of the Permit. LID treatment measures include rainwater harvesting, infiltration, and evapotranspiration.

Hydromodification Management requirements do not apply to this project since the project is located in an area specifically excluded from HM requirements on the City of Milpitas HMP Applicability Map (available from SCVURPPP).

2. Proposed Stormwater Measures and Sizing Calculations

Source Control Measures for the project are as follows (as shown on the C.3 Form and explained in the SWCP)

- Covered dumpster area, drain to sanitary sewer
- Beneficial Landscaping (minimize irrigation and runoff, minimize pesticide and fertilizer use)
- Maintenance Activities (such as street sweeping, storm drain system cleansing)
- Storm Drain Labeling (to deter non-storm water discharges)

Site Design Measures are as follows (as shown on the C.3 Form and explained in the SWCP)

- Minimize impervious surfaces
- Minimum-impact street design (narrower street widths to limit impervious surfaces)
- Disconnected downspouts
- Microdetention in landscape
- Other self-treating area

Stormwater Treatment Measures

- Twenty nine bioretention basins collecting water from all proposed rooftops, sidewalks, driveways and surface streets.
- One self-treating area collecting water from pervious areas only

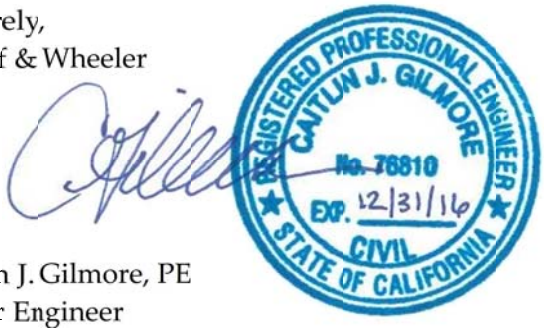
Schaaf & Wheeler verified that calculations for all bio-treatment measures were done correctly, based on a combined flow and volume based method. The details provided for both bio-treatment devices are consistent with the SCVURPPP C.3 Handbook.

Operations and Maintenance Plans have been included in the SWCP which clearly state the responsible party and describe maintenance of all stormwater treatment BMPs.

The sizing, selection, and preliminary design of the 100% LID storm water treatment control BMPs in the SWCP meet the requirements of City's Municipal Code XI-16-6, the Municipal Regional Stormwater Permit (Order No. R2-2015-0049) provision C.3 and the SCVURPPP C.3 Handbook dated April 2012.

If you require any additional information, please feel free to call me at the number above.

Sincerely,
Schaaf & Wheeler



Caitlin J. Gilmore, PE
Senior Engineer