NEXGEN
BUILDERS, INC.

Transportation plan for Highland Estates
Phase 1 Bunker Hill Drive

All delivery, dump, or concrete trucks will leave the site by going down Bunker Hill Drive to Polhemus, traveling to the 92 Freeway to Highway 101. They will arrive on the same route in reverse.

Any trucking activities will be scheduled after the peak traffic hours of 7:30 am to 8:30 am and before the peak evening hours of 5:00 pm to 6:00 pm. Peak traffic hours were determined by the Highland Estates Administrative Draft Transportation impact study done in Sept. 2008.

225 DEMETER STREET, EAST PALO ALTO, CA 94303 LIC. # B709928
PHONE: (650) 322-5800 FAX: (650) 322-5806

NEXGEN
BUILDERS, INC.

Transportation plan for Highland Estates Phase 2

Accessing Cobble Hill, Cowpens and Ticonderoga Roads

All deliveries, dump or concrete trucks will arrive to the construction sites at Ticonderoga road, Cowpens road and Cobble Hill road by way of Highway 92 to Polhemus Road to Ticonderoga Road. All trucks and deliveries will exit along the same route in reverse.

Any truck and deliveries will be scheduled after peak traffic hours of 7:30 to 8:30 AM and before the peak evening hours of 5:00 to 6:00 PM. Peak traffic hours were determined by the Highlands Estates Administrative Draft transportation impact study done in September of 2008.

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BUILDERS, INC.

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225 DEMETER STREET, EAST PALO ALTO, CA 94303 LIC. # B709928
PHONE: (650) 322-5800 FAX: (650) 322-5806

CORNERSTONE EARTH GROUP

Date:	November 15, 2018
Project No.:	230-1-6
Prepared For:	Mr. Jack Chamberlain **TICONDEROGA PARTNERS, LLC** 655 Skyway, Suite 230 San Carlos, California 94070
Re:	Geotechnical Consultation and Response to County of San Mateo Geotechnical Comment Highlands Estates (Lots 9 and 10) San Mateo, California County of San Mateo Geotechnical File Number BLD2016-00158--00164

Dear Mr. Chamberlain:

As requested, this letter presents our geotechnical consultation and response to the recent final County of San Mateo geotechnical comment for Lots 9 and 10 for the above referenced project, received via email on October 30, 2018. Following the email from Ms. Camille Leung, on October 31, we had a phone call with yourself, BKF, and San Mateo County staff (Ms. Sherry Liu and Ms. Camille Leung) to discuss the final review comment and our recommendations to address the comment. This letter documents our response to the comment and geotechnical recommendations.

Our services were performed in accordance with our proposal and agreement, dated April 20, 2016. As you know, our firm prepared a report for this project, titled “Updated Geotechnical Investigation, Highland Estates Lots 5 through 11, Ticonderoga Drive/Cobblehill Place/Cowpens Way, San Mateo, California” dated October 30, 2015. Our Geotechnical Review of Foundation and Civil Plans for Lots 9 to 11 were presented in three letters (one for each lot) dated December 2, 2016. We also prepared a document titled “Recommended Standard Operating Procedure (SOP) for NOA Intrusive Work, Lots 9 to 11, Highland Estates” dated March 17, 2017. We have previously prepared a letter titled “Response to County of San Mateo Planning Comments – Conditions 37 and 38, San Mateo Highlands (Lots 9 to 11)” dated September 25, 2017. We also prepared at letter titled, “Geotechnical Consultation and Response to County of San Mateo Geotechnical Comments, San Mateo Highlands (Lots 9 to 10) dated July 8, 2018. Additionally, we prepared a letter titled “Response to County of San Mateo Planning Comments Dated September 5, 2018 on Lots 5 to 11” dated September 21, 2018.

Response to Comment October 30, 2018 for Lot 9 and 10

Comment #1: *As the slope below the riprap is 2:1 as shown on BKF Sheet C9.71 for Lot 9 (dated 10-8-18), if water must be discharged across the face of a steep fill slope, then County requires the implementation of one of the following measures:*

1. *Construction of a type of impermeable barrier utilized to isolate the surface waters from the fill material. NOTES: This measure will need to be shown on the civil plans and require another round of revision and review. If earth materials for fill construction are of a type that creep at a 2:1 slope, then a hard grouted rock channel may not be a good solution.*

   OR

2. *Implementation of an Annual Monitoring requirement over 5 years, specifically for year 1, 2 and 5, that would allow visual detection and mandatory correction of any problems that become evident with this proposed drainage system design. NOTES: As drainage is shared between Lots 9 and 10, cost of monitoring could also be shared by the 2 homeowners. This measure will not require another round of plan revision or review but a legal mechanism will need to applied prior to sale OR at the time of Final Inspection, whichever is earliest.*

Please let us know which measure you intend to implement to proceed with permits for these lots.

CEG Response:

As we discussed, the project owner would like to implement the first option to address the above comments. As shown on Sheets C9.71 and C9.93 of the project Civil Plans, the rip rap slope protection will be underlain Marifi FW 700 geotextile fabric or approved equal. We do not recommend the rip rap be hard grouted because that will reduce rock's function of dissipating energy and slowing down the water after being discharged into the rock lined channel. As an alternative to grouting the rock to create an impermeable barrier to isolate the surface water from the underlying fill material, we recommend placing a select fill material consisting of quarry fines mixed with cement beneath the rip rap and geotextile fabric. We have made revisions to Sheets C9.71, C9.91 and C9.93 (see attached) showing the thickness and lateral extent of the select fill material beneath the rock lined channel. We recommend that the Quarry Fines from Stevens Creek Quarry be mixed with bulk cement on-site, moisture conditioned and compacted as recommended in our report. We recommend about 3 percent cement (i.e. 4 pounds of cement per cubic foot of Quarry Fines, compacted in-place). The spreading of the cement would likely need to be done by hand at the job site prior the placement in the fill. Our representative should be on-site during placement to verify the percentage of cement being used in the fill as well as monitoring mixing of the cement, moisture conditioning, and compaction. The material should be compacted within 2 to 4 hours of the initial mixing of the cement. The cement treated select fill material would not be subject to soil creep.

Closure

We hope this provides the information you need at this time. Recommendations presented in this letter have been prepared for the sole use of Ticonderoga Partners, LLC specifically for the property at 2184 and 2185 Cobblehill Place (Lots 9 and 10) in San Mateo, California. Our professional services were performed, our findings obtained, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices at this time and location. No warranties are either expressed or implied.

If you have any questions or need any additional information from us, please call and we will be glad to discuss them with you.

Sincerely,

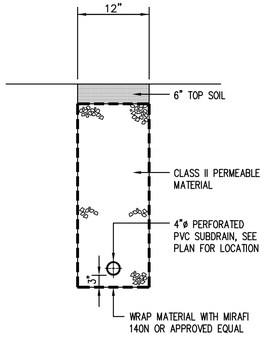
Cornerstone Earth Group, Inc.

Scott E. Fitinghoff, P.E., G.E.
Senior Principal Engineer

SEF:sef

Addressee (1 by email)

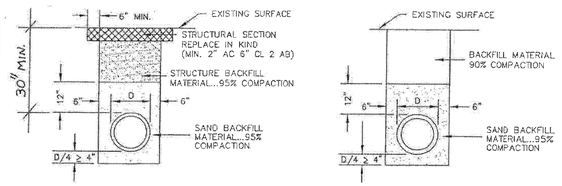
Attachments: Revised Civil Plan Sheets C9.71, C9.91 and C9.93



7 — SUBDRAIN
NTS

SAN MATEO COUNTY DEPARTMENT OF PUBLIC WORKS
REDWOOD CITY CALIFORNIA

DRAWN BY: M.L. | CHECK BY: D.M.W. | APPROVED BY: N.R.C.
SCALE: NONE | DATE: 6/95 | REVISED: 7/97



TYPE A (IN ROADWAY) — TYPE B (OUTSIDE ROADWAY)

NOTES

1. SAND.... MATERIAL FREE FROM ORGANIC MATTER AND CLAY WITH A SIEVE GRADATION BY WEIGHT AS FOLLOWS:

SIEVE SIZE	% PASSING SIEVE
No. 4	100
No. 200	0–5

2. STRUCTURE BACKFILL MATERIAL.... MATERIAL WITH SAND EQUIVALENT NOT LESS THAN 20 AND SIEVE GRADATION BY WEIGHT AS FOLLOWS:

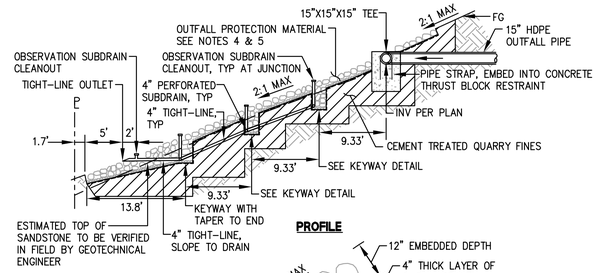
SIEVE SIZE	% PASSING SIEVE
3"	100
No. 4	35–100
No. 30	20–100

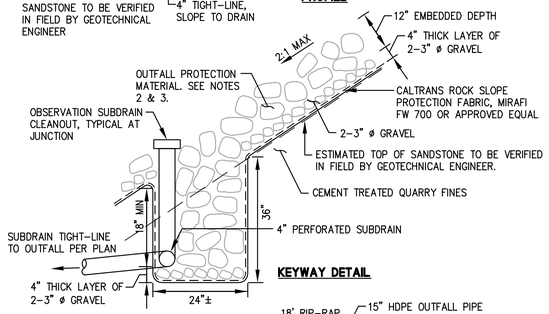
3. BACKFILL MATERIAL.... MATERIAL FROM EXCAVATION, FREE FROM STONES OR LUMPS EXCEEDING 3 INCHES GREATEST DIMENSION, ORGANIC MATTER, OR OTHER UNSATISFACTORY MATERIAL.

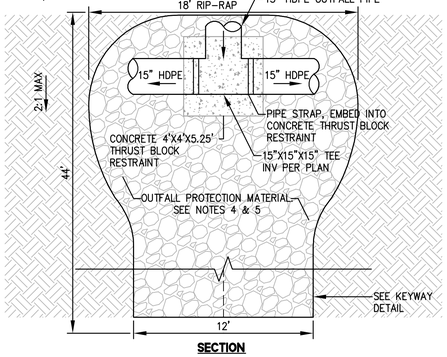
STANDARD TRENCH BACKFILL AND BEDDING DETAIL

W–10

6 — SAN MATEO COUNTY STANDARD TRENCH BACKFILL & BEDDING DETAIL
NTS







SECTION

NOTES:

1. ALL HEADWALLS SHALL BE PLASTIC AND CONSTRUCTED IN CONFORMANCE WITH CALTRANS STANDARD PLAN D94A AND SECTION 70–5.02 OF THE CALTRANS STANDARD SPECIFICATIONS, 2015.
2. PIPE MATERIAL TO BE HDPE, CORRUGATED EXTERIOR WITH SMOOTH INTERIOR.
3. CONCRETE THRUST BLOCK TO BE PCC.
4. AREA OF ROCK RIP–RAP OUTFALL/EROSION PROTECTION IN ACCORDANCE WITH VELOCITY DISSIPATION DEVICES EC–10 OF THE CALIFORNIA STORMWATER QUALITY ASSOCIATION (CASQA) BMP HANDBOOK, JANUARY 2011.
5. OUTFALL PROTECTION MATERIAL:
   –CALTRANS ROCK SLOPE PROTECTION FABRIC WITH NO. 2 BACKING CONFORMING TO SECTION 72 OF THE CALTRANS STANDARD SPECIFICATIONS.
   –CALTRANS NO. 2 TO BE ~8" SIZE ANGULAR ROCK (25 LBS, TYP.) BROWN TO DARK BROWN/BLACK IN COLOR.
6. KEYWAYS SHALL BE EVENLY SPACED ALONG THE RIP–RAP LENGTH.
7. SEE SHEETS C9.91 AND C9.93 FOR CEMENT TREATED QUARRY FINES.

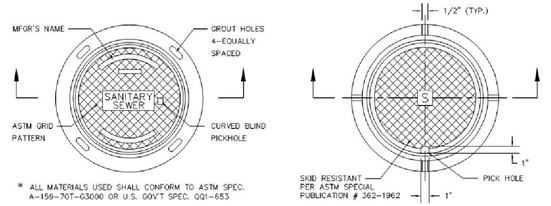
4 — OUTLET STRUCTURE
NTS

SAN MATEO COUNTY DEPARTMENT OF PUBLIC WORKS
REDWOOD CITY CALIFORNIA

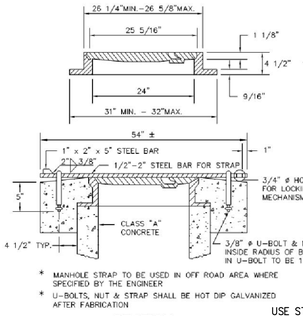
DRAWN BY: M.L. | CHECK BY: R.O. | APPROVED BY: N.R.C.
SCALE: NONE | DATE: 6/95 | REVISED:

GENERAL NOTE:

FRAME AND COVER SHALL MEET OR EXCEED THE REQUIREMENTS OF AASHTO H–20 LOADING.



* ALL MATERIALS USED SHALL CONFORM TO ASTM SPEC. A–159–70T–G3000 OR U.S. GOVT SPEC. QQ1–653

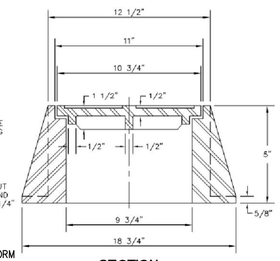


* MANHOLE STRAP TO BE USED IN OFF ROAD AREA WHERE SPECIFIED BY THE ENGINEER
* U–BOLTS, NUT & STRAP SHALL BE HOT DIP GALVANIZED AFTER FABRICATION

SECTION

SANITARY SEWER MANHOLE COVER, FRAME AND STRAP DETAIL
C–2

* ALL MATERIALS USED SHALL CONFORM TO ASTM SPEC. A–159–64T–G3000 OR U.S. GOVT SPEC. QQ1–653



USE STORM DRAIN FOR STORM DRAINAGE SYSTEM

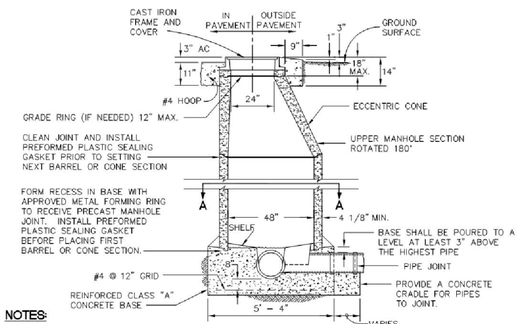
SECTION

SANITARY SEWER FLUSHING INLET COVER

2 — MANHOLE FRAME AND COVER
NTS

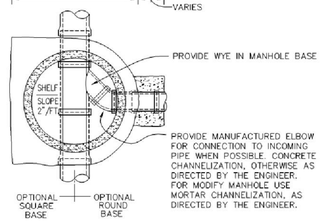
SAN MATEO COUNTY DEPARTMENT OF PUBLIC WORKS
REDWOOD CITY CALIFORNIA

DRAWN BY: D.P. | CHECK BY: R.O. | APPROVED BY: N.R.C.
SCALE: NONE | DATE: 6/95 | REVISED: 7/97



NOTES:

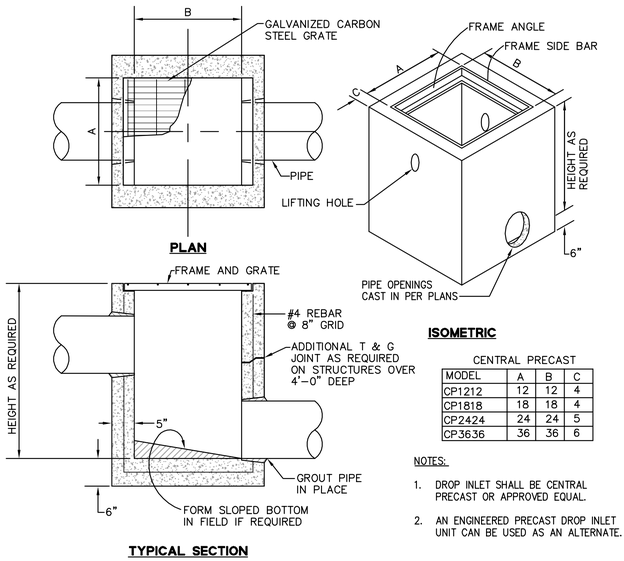
1. ALL STEEL TO BE 3" CLEAR.
2. LAY PIPE THRU M.H. WHEN POSSIBLE.
3. M.H. SHELF SHALL BE MORTARED TO A SLOPE OF 2"/FT.
4. THERE SHALL BE NO STEPS IN THE MANHOLE.
5. PREFORMED PLASTIC SEALING GASKET SHALL BE "RAM–NEK" OR APPROVED EQUAL.
6. IN THE EVENT PVC OR ABS PIPES ARE APPROVED, STANDARD WATER STOPS SHALL BE INCORPORATED INTO THE MANHOLE BASE.
7. OTHER APPLICABLE DETAIL: C–2
8. MANHOLE THROAT LOCATION TO BE OPPOSITE THE LARGEST SHELF AREA OR AS DIRECTED BY THE ENGINEER



SECTION A–A

SANITARY SEWER MANHOLE DETAIL
C–1

1 — MANHOLE (PIPES 6" TO 21")
NTS



PLAN — ISOMETRIC

TYPICAL SECTION

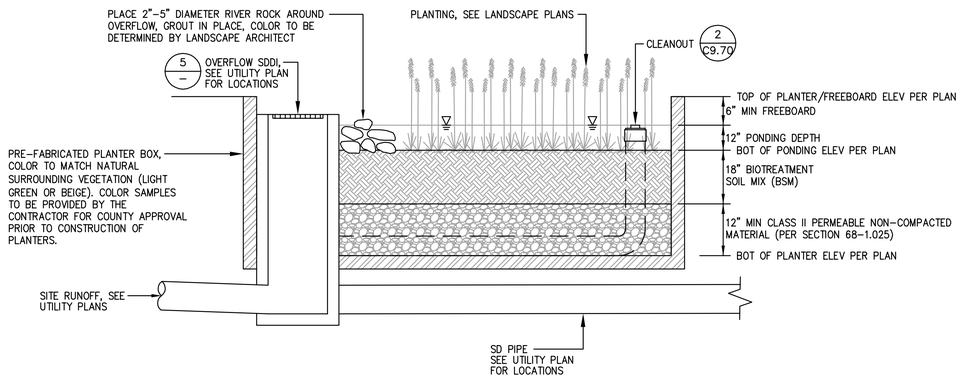
CENTRAL PRECAST

MODEL	A	B	C
CP1212	12	12	4
CP1818	18	18	4
CP2424	24	24	5
CP3636	36	36	6

NOTES:

1. DROP INLET SHALL BE CENTRAL PRECAST OR APPROVED EQUAL.
2. AN ENGINEERED PRECAST DROP INLET UNIT CAN BE USED AS AN ALTERNATE.

5 — DROP INLET
NTS



3 — AT–GRADE FLOW–THROUGH PLANTER
NTS

BKF ENGINEERS
255 SHORELINE DRIVE, SUITE 200
REDWOOD CITY, CA 94065
PHONE: (650) 482–6300
FAX: (650) 482–6399
ENGINEERS | SURVEYORS | PLANNERS

REGISTERED PROFESSIONAL ENGINEER — MINHAN TANG — No. 087726 — CIVIL — STATE OF CALIFORNIA

HIGHLAND ESTATES
LOT 9 IMPROVEMENT PLANS
CONSTRUCTION DETAILS

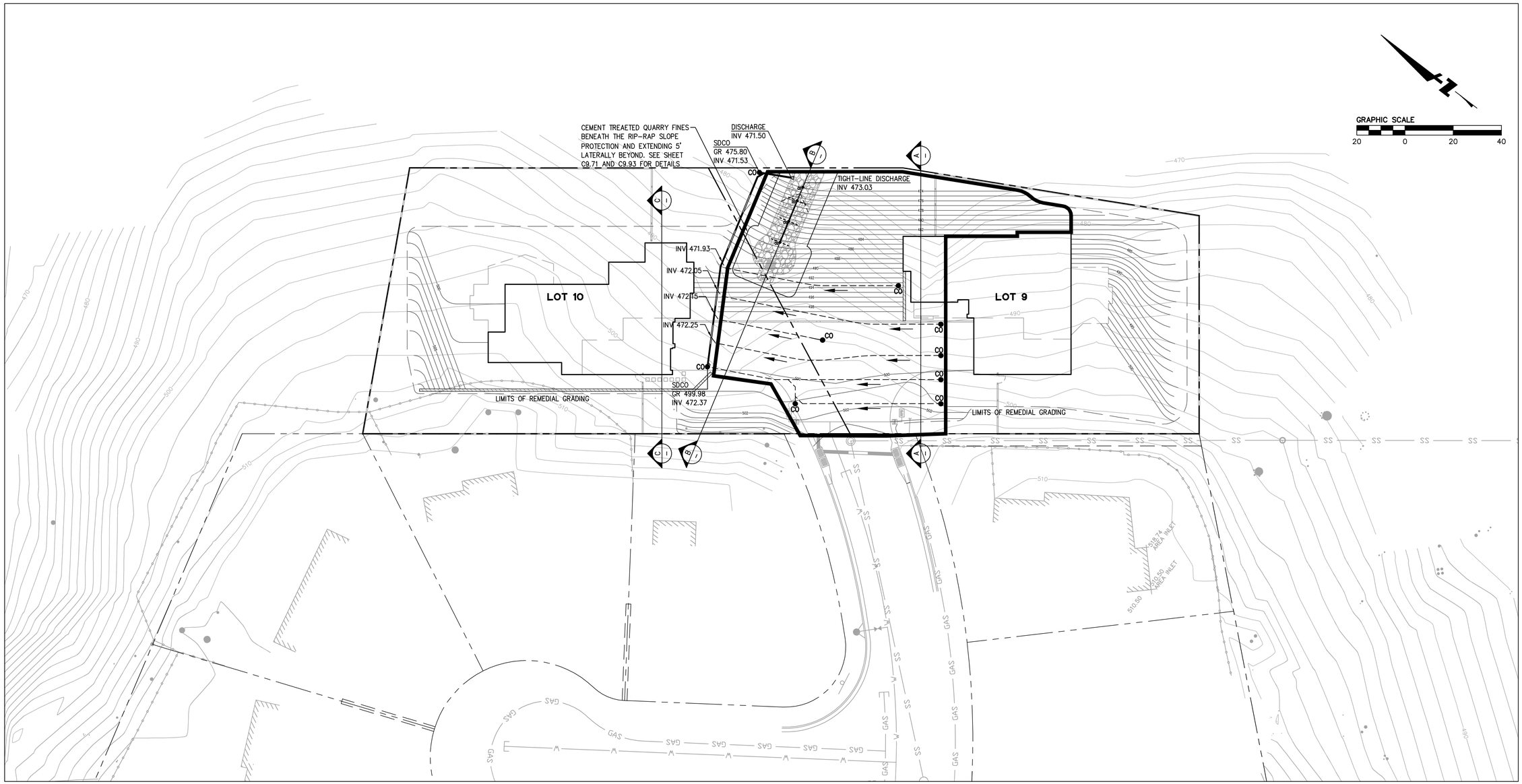
CITY OF SAN MATEO — SAN MATEO COUNTY — CALIFORNIA

Revisions | No.

Date	10/8/2018
Scale	AS SHOWN
Design	RH
Drawn	NH
Approved	RH/JT
Job No	950168–20

Sheet Number:
C9.71
OF

DRAWING NAME: K:\Eng95\950168\dwg\EXHIBITS\2018–11–06 Geotechnical Exhibits\C9.71–HECDDT.dwg
PLOT DATE: 11–06–18
PLOTTED BY: holt



LEGEND

AREA OF OVER-EXCAVATION, KEYING, AND BENCHING FOR FILL REMOVAL (I.E. REMEDIAL GRADING). (SEE GEOTECHNICAL REPORT FOR ADDITIONAL INFORMATION); ALSO SEE SHEETS C9.30, C9.40, C9.92 AND C9.93 FOR EARTHWORK, KEYING, BENCHING, AND SUBDRAIN MITIGATION DETAILS.

4" PERFORATED SUBDRAIN FOR KEYWAY, NOTE THE FINAL LOCATIONS OF THE SUBDRAIN WILL BE DETERMINED BY CORNERSTONE DURING CONSTRUCTION, ARROW IS ANTICIPATED DIRECTION OF FLOW.

BKF HAS PREPARED THESE PLANS BASED ON CORNERSTONE EARTH GROUP GEOTECHNICAL INVESTIGATION. AND RECOMMENDATIONS.

REGISTERED PROFESSIONAL ENGINEER JONATHAN TANG No. C67726 CIVIL STATE OF CALIFORNIA

JONATHAN TANG, P.E.

THE UNDERSIGNED GEOTECHNICAL ENGINEER HAS PERFORMED A GEOTECHNICAL INVESTIGATION AT THE SITE INCLUDING PERFORMING FIELD INVESTIGATION, LABORATORY TESTING, ENGINEERING ANALYSIS, AND REPORT PREPARATION AS DESCRIBED IN THE OCTOBER 30, 2015 REPORT BY CORNERSTONE EARTH GROUP, INC. FOR THE PROJECT. THE GEOTECHNICAL ASPECTS OF THESE PLAN SHEETS HAVE BEEN PREPARED AND REVIEWED BY THE UNDERSIGNED GEOTECHNICAL ENGINEER AND ARE BASED UPON LIMITATIONS DESCRIBED IN THE GEOTECHNICAL INVESTIGATION REPORT. THESE PLANS ARE NOT A STAND-ALONE DOCUMENT AND SHOULD BE CONSIDERED AS PART OF THE GEOTECHNICAL INVESTIGATION REPORT. THE GEOTECHNICAL DESIGN ASPECTS IN THESE PLANS ARE CONTINGENT UPON A GEOTECHNICAL ENGINEER AND ENGINEERING GEOLOGIST OBSERVING CERTAIN ASPECTS OF THE PROJECT GRADING. THESE PLANS ARE SUBJECT TO MODIFICATION AND REVISION DURING CONSTRUCTION BASED ON THE FIELD CONDITIONS ENCOUNTERED.

REGISTERED PROFESSIONAL ENGINEER SCOTT E. FITINGHOFF No. 2379 GEOTECHNICAL STATE OF CALIFORNIA

SCOTT E. FITINGHOFF, P.E., G.E.

BKF
ENGINEERS | SURVEYORS | PLANNERS
255 SHORELINE DRIVE, SUITE 200
REDWOOD CITY, CA 94065
PHONE: (650) 482-6300
FAX: (650) 482-6399

HIGHLAND ESTATES
LOT 9 IMPROVEMENT PLANS
GEOTECHNICAL MITIGATION PLAN (LOTS 9 AND 10)

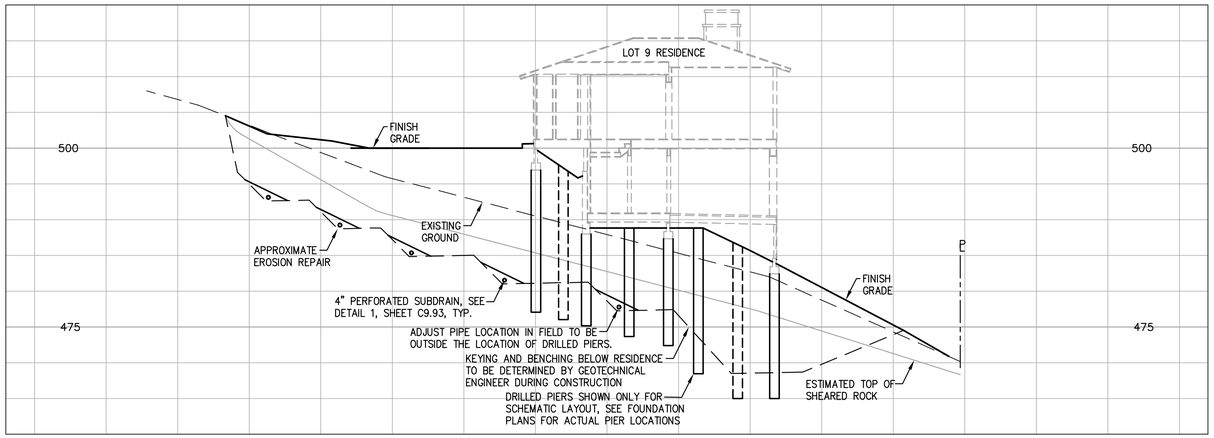
CITY OF SAN MATEO SAN MATEO COUNTY CALIFORNIA

Revisions	No.

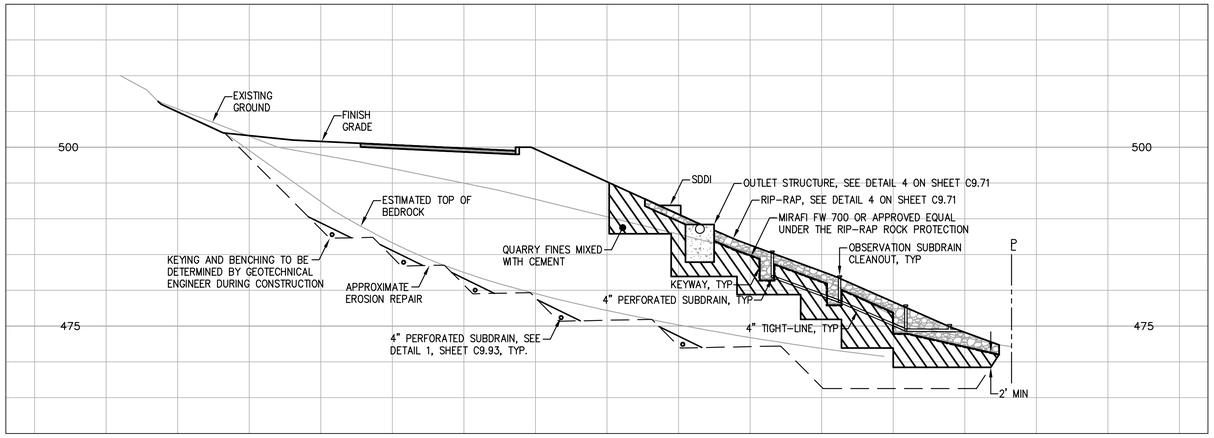
Date	10/8/2018
Scale	1"=20'
Design	RH
Drawn	NH
Approved	RH/JT
Job No	950168-20

Sheet Number:
C9.91
OF

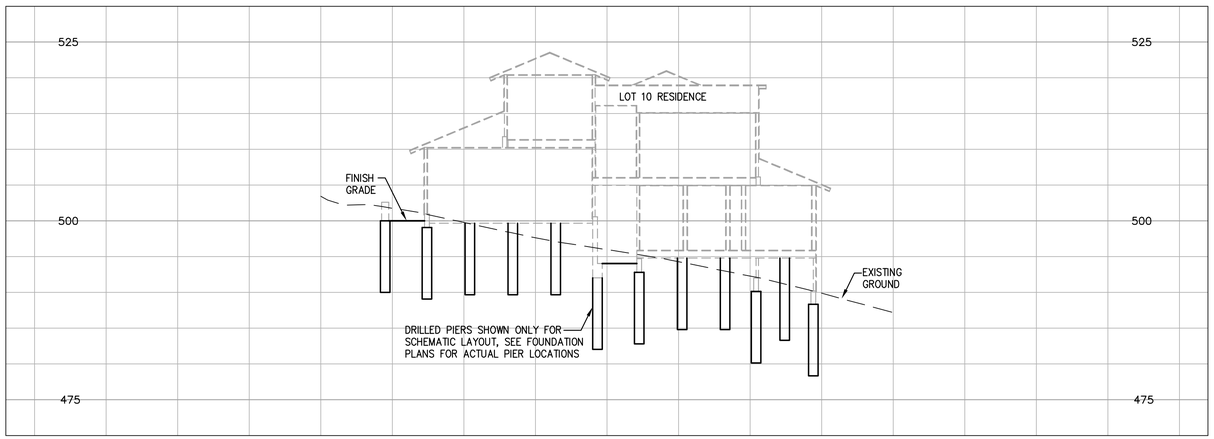
DRAWING NAME: K:\Eng95\950168\dwg\EXHIBITS\2018-11-06 Geotechnical Exhibits\C9.91.dwg
PLOT DATE: 11-06-18 PLOTTED BY: holt



A-A CROSS SECTION
SCALE: 1"=10'



B-B CROSS SECTION
SCALE: 1"=10'



C-C CROSS SECTION
SCALE: 1"=10'

DRAINAGE MATERIAL

ALTERNATIVE 1

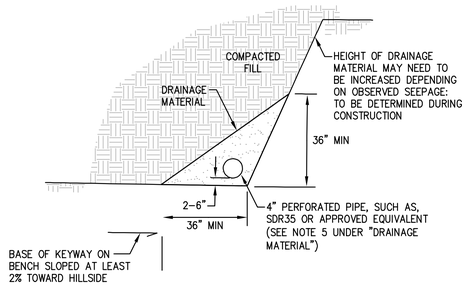
CLASS 2 PERMEABLE MATERIAL
(CALTRANS STANDARD SPECS LATEST EDITION)
MATERIAL SHALL CONSIST OF CLEAN, COARSE SAND AND GRAVEL OR CRUSHED STONE, CONFORMING TO THE FOLLOWING GRADATION REQUIREMENTS:

SIEVE SIZE	% PASSING SIEVE
1"	100
3/4"	90–100
3/8"	40–100
#4	25–40
#8	18–33
#30	5–15
#50	0–7
#200	0–3

ALTERNATIVE 2

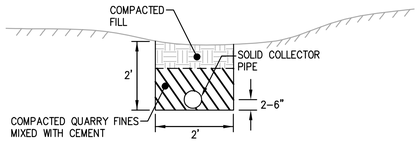
1/2 – TO 3/4– INCH CLEAN CRUSHED ROCK OR GRAVEL WRAPPED IN FILTER FABRIC
ALL NON-WOVEN FILTER FABRIC SHALL MEET THE FOLLOWING MINIMUM AVERAGE ROLL VALUES UNLESS OTHERWISE SPECIFIED BY CORNERSTONE EARTH GROUP

GRAB STRENGTH (ASTM D–4632):	180 LBS.
MASS PER UNIT AREA (ASTM D–4751):	5 OZ/YD
APPARENT OPENING SIZE (ASTM D–4751):	70–100 U.S. STD. SIEVE
FLOW RATE (ASTM D–4491):	80 GAL/MIN/FT
PUNCTURE STRENGTH (ASTM D–4833):	80 LBS.



NOTES:
1. 1% FALL (MINIMUM) ALONG ALL KEYWAYS, BENCHES ANDSUBDRAIN LINES.
2. ALL PERFORATED PIPE PLACED PERFORATIONS DOWN.
3. ALL PIPE JOINTS SHALL BE GLUED.
4. ALL SUBDRAINS SHOULD BE DISCHARGED TO A FREE DRAINING OUTLET APPROVED BY THE CIVIL ENGINEER.
5. SUBDRAIN PIPE (PERFORATED OR SOLID CONNECTOR) SHOULD CONSIST OF SDR–35 PVC PIPE WHEN PLACED IN FILLS LESS THAN 30 FEET DEEP.
6. USE 4" PERFORATED PIPE ON KEYWAY OR BENCHES.
7. USE 6" SOLID PIPE FOR COLLECTOR PIPES OR 6" PERFORATED PIPE (DETAIL 2)
8. PIPE FITTINGS FOR CLEAN–OUTS AND OTHER 90° BENDS IN THE SUBDRAIN SYSTEM (EXCEPT THE CONNECTION BETWEEN THE 4"PERFORATED PIPES AND 6"COLLECTION PIPES) SHOULD BE "SWEEP 90'S" OR OTHER APPROVED EQUIVALENT.
9. CONTRACTOR TO PROVIDE ALL INCIDENTAL FITTINGS IN THEIR BID PRICE TO CONSTRUCT THE SUBDRAIN SYSTEM. NOT ALL INCIDENTAL FITTINGS ARE SHOWN ON THESE PLANS.
10. FINAL SUBDRAIN LAYOUT AND PLACEMENT TO BE DETERMINED BY GEOTECHNICAL ENGINEER AT TIME OF CONSTRUCTION SUBDRAIN SHALL NOT CONFLICT WITH DRILLED PIERS.

DETAIL 1 – TYPICAL BENCH AND KEYWAY SUBDRAIN
NTS



NOTES:
1. THIS AREA MAY HAVE ACTIVE SEEPAGE DURING CONSTRUCTION.
2. COLLECTOR PIPE SHOULD BE 6" PERFORATED PIPE, SUCH AS SDR–35 OR SDR–23.5 OR APPROVED EQUIVALENT (SEE DETAIL 1 NOTE 5 UNDER "DRAINAGE MATERIAL")
3. PIPE FITTINGS FOR CLEAN–OUTS AND OTHER 90° BENDS IN THE SUBDRAIN SYSTEM (EXCEPT THE CONNECTION BETWEEN THE 4"PERFORATED PIPES AND 6" COLLECTION PIPES) SHOULD BE "SWEEP 90'S"OR OTHER APPROVED EQUIVALENT.
4. CONTRACTOR TO PROVIDE ALL INCIDENTAL FITTINGS IN THEIR BID PRICE TO CONSTRUCT THE SUBDRAIN SYSTEM. NOT ALL INCIDENTAL FITTINGS ARE SHOWN ON THESE PLANS.
5. FINAL SUBDRAIN LAYOUT AND PLACEMENT TO BE DETERMINED BY GEOTECHNICAL ENGINEER AT TIME OF CONSTRUCTION.

DETAIL 2 – SOLID COLLECTOR PIPE DETAIL
NTS

BKF HAS PREPARED THESE PLANS BASED ON CORNERSTONE EARTH GROUP GEOTECHNICAL INVESTIGATION AND RECOMMENDATIONS.

REGISTERED PROFESSIONAL ENGINEER JONATHAN TANG No. C67726 CIVIL STATE OF CALIFORNIA

JONATHAN TANG, P.E.

THE UNDERSIGNED GEOTECHNICAL ENGINEER HAS PERFORMED A GEOTECHNICAL INVESTIGATION AT THE SITE INCLUDING PERFORMING FIELD INVESTIGATION, LABORATORY TESTING, ENGINEERING ANALYSIS, AND REPORT PREPARATION AS DESCRIBED IN THE OCTOBER 30, 2015 REPORT BY CORNERSTONE EARTH GROUP, INC. FOR THE PROJECT. THE GEOTECHNICAL ASPECTS OF THESE PLAN SHEETS HAVE BEEN PREPARED AND REVIEWED BY THE UNDERSIGNED GEOTECHNICAL ENGINEER AND ARE BASED UPON LIMITATIONS DESCRIBED IN THE GEOTECHNICAL INVESTIGATION REPORT. THESE PLANS ARE NOT A STAND–ALONE DOCUMENT AND SHOULD BE CONSIDERED AS PART OF THE GEOTECHNICAL INVESTIGATION REPORT. THE GEOTECHNICAL DESIGN ASPECTS IN THESE PLANS ARE CONTINGENT UPON A GEOTECHNICAL ENGINEER AND ENGINEERING GEOLOGIST OBSERVING CERTAIN ASPECTS OF THE PROJECT GRADING. THESE PLANS ARE SUBJECT TO MODIFICATION AND REVISION DURING CONSTRUCTION BASED ON THE FIELD CONDITIONS ENCOUNTERED.

REGISTERED PROFESSIONAL ENGINEER SCOTT E. FITINGHOFF No. 2379 GEOTECHNICAL STATE OF CALIFORNIA

SCOTT E. FITINGHOFF, P.E., G.E.

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BKF ENGINEERS | SURVEYORS | PLANNERS

HIGHLAND ESTATES
LOT 9 IMPROVEMENT PLANS
GEOTECHNICAL MITIGATION CROSS SECTIONS (LOTS 9 AND 10)
CITY OF SAN MATEO — SAN MATEO COUNTY — CALIFORNIA

Revisions	No.

Date 10/5/2018
Scale AS SHOWN
Design RH
Drawn NH
Approved RH/JT
Job No 950168-20

Sheet Number:
C9.93
OF

DRAWING NAME: K:\Eng95\950168\dwg\EXHIBITS\2018-11-06 Geotechnical Exhibits\C9.93.dwg
PLOT DATE: 11-06-18 PLOTTED BY: holt

RECEIVED
NOV 30 2018
San Mateo County
Planning and Building Department

M I G

memo san jose

to **Jack Chamberlain, Ralph Osterling**

from **Tay Peterson**

re **Highland Estates Lots 9, 10, 11 Biological Mitigation Compliance**

date **11/28/2018**

This memorandum report summarizes the results of pre-construction surveys completed for the Highland Estates project in the San Mateo Highlands, specifically for lots 9 and 10 at the end of Cobblehill Place and lot 11 at the end of Cowpens. The surveys were completed on November 26, 2018 to comply with biology mitigation measures included in the Conditions of Approval for the project. The weather was clear, calm, and warm (about 65 degrees F).

The following measures are included in the Conditions of Approval for the project:

Mitigation Measure BIO-2a: No earlier than 30 days prior to the commencement of construction activities, a survey shall be conducted to determine if active woodrat nests (stickhouses) with young are present within the disturbance zone or within 100 feet of the disturbance zone. If active woodrat nests (stickhouses) with young are identified, a fence shall be erected around the nest site adequate to provide the woodrat sufficient foraging habitat at the discretion of a qualified biologist and based on consultation with the CDFG. At the discretion of the monitoring biologist, clearing and construction within the fenced area would be postponed or halted until young have left the nest. The biologist shall serve as a construction monitor during those periods when disturbance activities will occur near active nest areas to ensure that no inadvertent impacts on these nests will occur.

If woodrats are observed within the disturbance footprint outside of the breeding period, individuals shall be relocated to a suitable location within the open space by a qualified biologist in possession of a scientific collecting permit. This will be accomplished by dismantling woodrat nests (outside of the breeding period), to allow individuals to relocate to suitable habitat within the adjacent open space.

Mitigation Measure BIO-2b: *No earlier than two weeks prior to commencement of construction activities that would occur during the nesting/breeding season of native bird species potentially nesting/roosting on the site (typically February through August in the*

project region), a survey for nesting birds shall be conducted by a qualified biologist experienced with the nesting behavior of bird species of the region. The intent of the survey would be to determine if active nests of special-status bird species or other species protected by the Migratory Bird Treaty Act and/or the California Fish and Game Code are present in the construction zone or within 500 feet of the construction zone. The surveys shall be timed such that the last survey is concluded no more than two weeks prior to initiation of construction or tree removal work. If ground disturbance activities are delayed, then an additional pre-construction survey shall be conducted such that no more than two weeks will have elapsed between the last survey and the commencement of ground disturbance activities. A report is required.

Mitigation Measure BIO-2c: *Prior to the commencement of construction activities during the breeding season of native bat species in California (generally occurs from April 1 through August 31), a focused survey shall be conducted by a qualified bat biologist to determine if active maternity roosts of special-status bats are present within any of the trees proposed for removal. Should an active maternity roost of a special-status bat species be identified, the roost shall not be disturbed until the roost is vacated and juveniles have fledged, as determined by the biologist. Once all young have fledged, then the tree may be removed. Species-appropriate replacement roosting habitat (e.g., bat boxes) shall be provided should the project require the removal of a tree actively used as a maternity roost. The replacement roosting habitat shall be subject to the approval of the CDFG.*

Mitigation Measure BIO-2d: *Immediately preceding initial ground disturbance activities on Lot 11, a pre-construction clearance survey shall be conducted by a qualified biologist for California red-legged frogs. The survey shall be conducted to determine whether individual California red-legged frogs are present within the disturbance boundary. Should a California red-legged frog be observed during the clearance survey, all construction activities on Lot 11 shall be immediately halted and the USFWS shall be immediately contacted. Under no circumstances shall a California red-legged frog be collected or relocated, unless USFWS personnel or their agents implement the measure. Construction-related activities may resume once the frog has naturally left the lot or has been relocated by a permitted biologist (authorized by the USFWS).*

The pre-construction survey occurred in November, outside of the breeding season for birds and bats. Construction activities that occur between now and February 1, 2019 are not required to be preceded by a nesting bird survey. Construction activities that occur between now and April 1, 2019 are not required to be preceded by a roosting bat survey. It is of note that the lots do not currently contain trees with loose bark or cavities that would provide suitable roost sites for bats, so bats roosts, including maternity roosts, are not expected to occur on the lots.

Surveys for California red-legged frog on Lot 11 were conducted on November 26th, 2018. The first rains of the season occurred about five days prior to the survey. Frogs

often start to move through upland habitat after the first rain. The biologist carefully paced along wandering transects within the upland areas of Lot 11, outside of the riparian area that is demarcated by orange fencing. No frog species were found during the survey. The fencing demarcating the riparian area will need to be repaired immediately prior to construction activities. The signage is still legible.

In addition, woodrat houses were relocated from lots 9, 10, and 11 in 2017 in compliance with Mitigation Measure BIO-2a, and the monitoring report was submitted. The parcels were checked for woodrat houses on November 26, 2018. There are three new woodrat houses in tree debris left on the ground after tree trimming was completed within the construction footprint on Lot 9 sometime between June and November 2018. These houses will need to be protected by a ten-foot construction buffer until they can be relocated in either March or August 2019 (due to breeding cycles), and any construction on Lot 9 will require a biological monitor to be present to comply with the Conditions of Approval (see attached map). Similarly, on Lot 11 there is a pile of bay tree branches near the creek, outside of the construction footprint, that contains a woodrat house (see attached map). This will need to be protected by a ten-foot buffer during construction, and it is recommended that the orange fencing be relocated in this area to protect the woodrat house. The buffers/fencing should be installed immediately prior to construction and a biologist should also provide worker education about them as part of the biological monitoring.

In summary, at this time the project has complied with Mitigation Measures BIO-2a, BIO-2b, BIO-2c, and BIO 2d, but construction on Lots 9 and 11 are required to include woodrat protection measures as indicated in measure BIO-2a.

HIGHLAND ESTATES
LOT 11 IMPROVEMENT PLANS
SITE & CLEARING, CONSTRUCTION AND GRADING PLANS

CITY OF SAN MATEO SAN MATEO COUNTY CALIFORNIA

No.	Revisions	Date	10/8/2018
		Scale	AS SHOWN
		Design	JT
		Drawn	LE
		Approved	RH/JT
		Job No	20168-20

Sheet Number: C11.3O of

BKF ENGINEERS / SURVEYORS / PLANNERS
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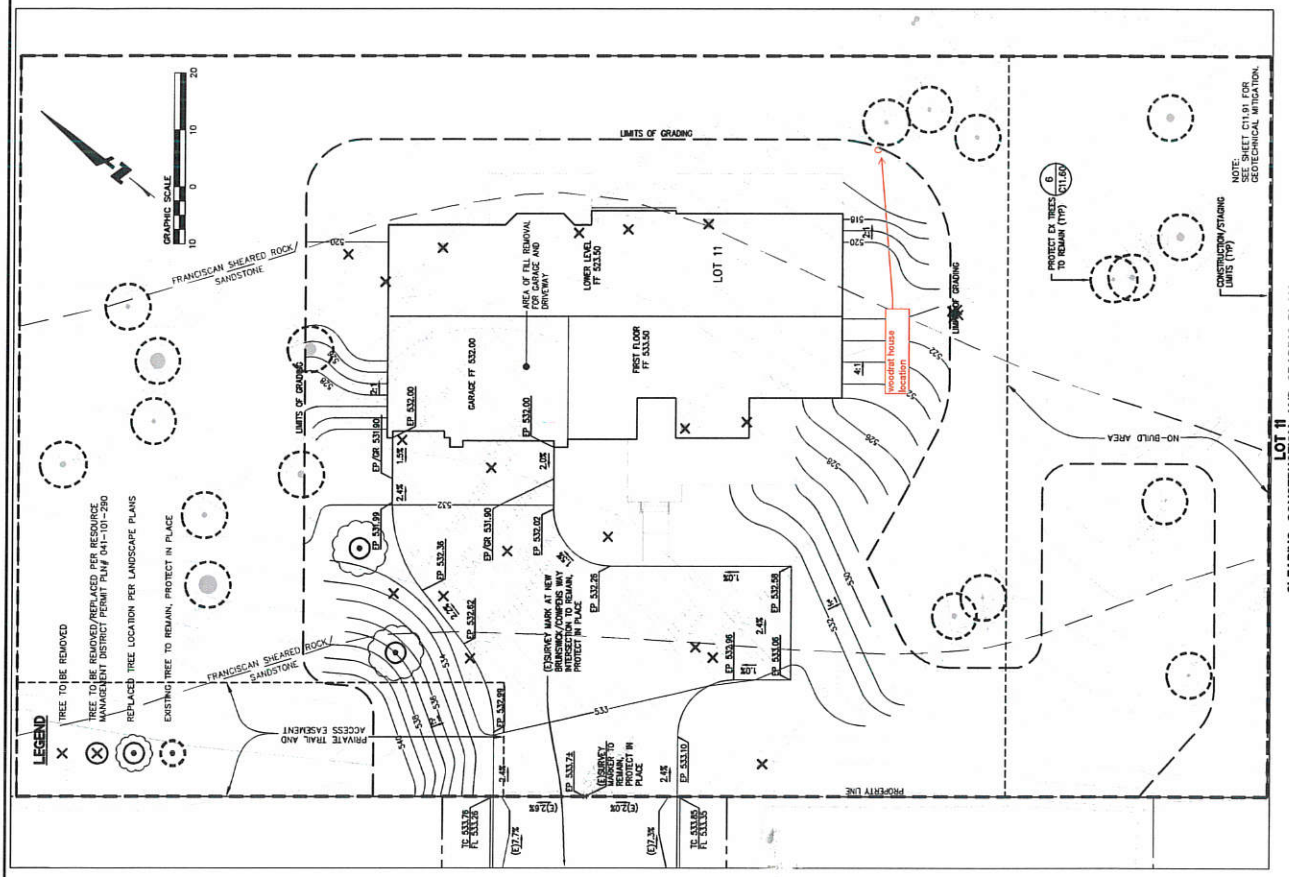
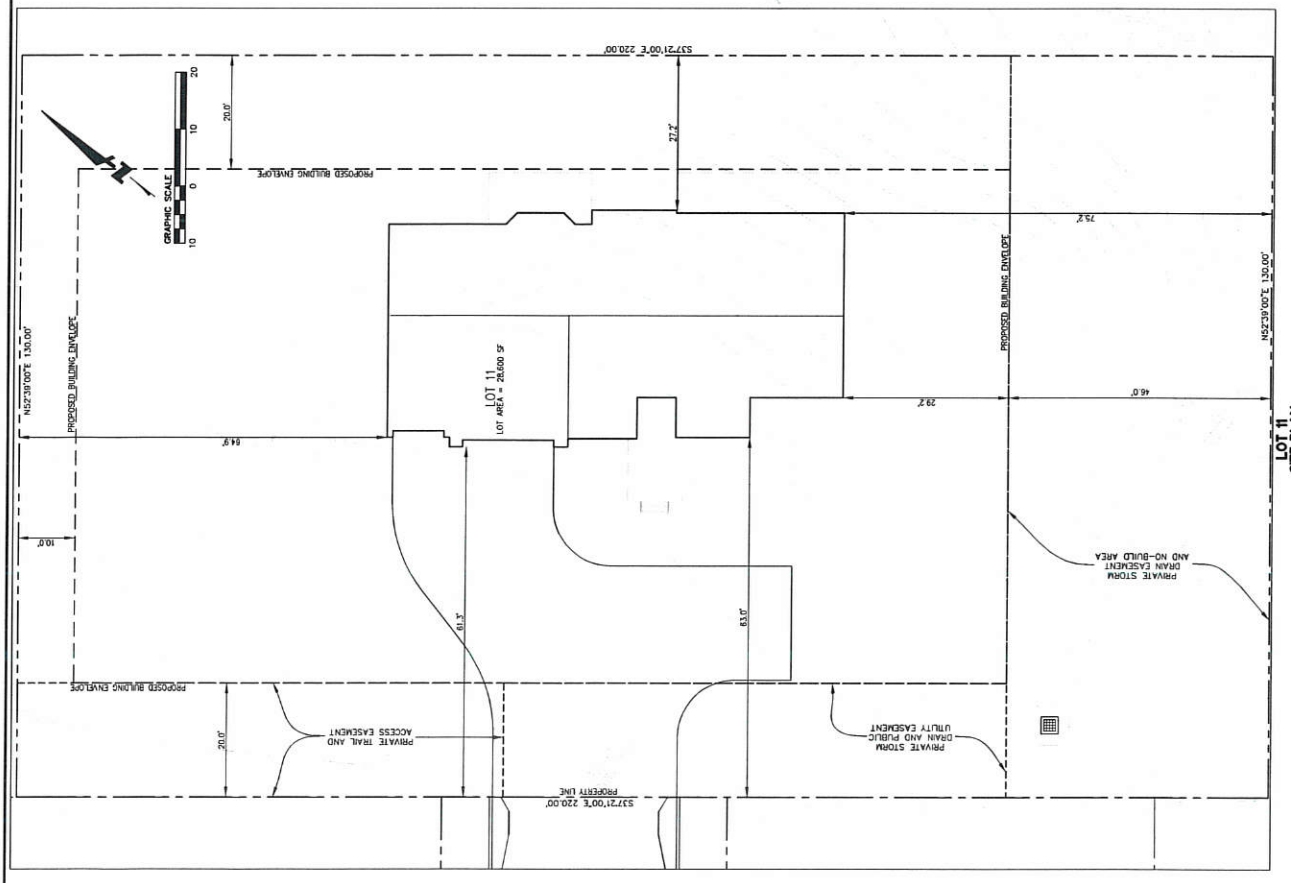
No. 62728 — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA — CIVIL



LOT 11
CLEARING, CONSTRUCTION, AND GRADING PLAN
SCALE: 1"=10'



LOT 11
SITE PLAN
SCALE: 1"=10'

BKF
ENGINEERS / SURVEYORS / PLANNERS
255 SHORELINE DRIVE, SUITE 200
REDWOOD CITY, CA 94065
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REGISTERED PROFESSIONAL ENGINEER
No. C67728
STATE OF CALIFORNIA
CIVIL

HIGHLAND ESTATES
LOT 9 IMPROVEMENT PLANS
SITE & CLEARING, CONSTRUCTION AND GRADING PLANS

CITY OF SAN MATEO SAN MATEO COUNTY CALIFORNIA

No.	Revisions

Date 10/8/2018
Scale AS SHOWN
Design JT
Drawn LE
Approved RH/JT
Job No 950168-20
Sheet Number: C9.30 OF

NOTE:
SEE SHEETS C9.91, C9.92 AND C9.93 FOR GEOTECHNICAL MITIGATION GRADING

PROPERTY LINE
CONSTRUCTION/STAGING LIMITS (TYP)
LIMITS OF GRADING
GRAPHIC SCALE
LOWER LEVEL FF 491.50
LOWER LEVEL FF 491.50
FIRST FLOOR FF 501.50
GARAGE FF 500.00
TOW 501.00 BOW 490.50
TOW 501.00 BOW 500.00
TC 500.50 FL 500.00
EP 500.00
EP 499.86
PAV 499.42
PAV 499.91
PAV 503.01
EP 499.73
EP 500.18
EP 500.38
EP 500.69
EP 502.46
TOW 501.50 BOW 500.00
E.V.A.E. AND PRIVATE ACCESS (INGRESS/EGRESS)
TC 503.13 FL 502.83
TC 503.50 FL 503.00
(E)SURVEY MARKER TO REMAIN, PROTECT IN PLACE
(E)RIM 503.66
COBBLEHILL PLACE
FRANCISCAN SKIRTED ROCK/ COBBLESTONE
TRANSITIONAL GREARED ROCK/ COBBLESTONE
6" CURB CUT FL 499.16
6" CURB CUT FL 499.00
6" CURB CUT FL 499.14
3 C9.70
1.7%
1.6%
0.8%
1.0%
2:1
1.25:1
10.0%
6.0%
woodrat houses

LOT 9
CLEARING, CONSTRUCTION, AND GRADING PLAN
SCALE: 1"=10'

PROPERTY LINE
PROPOSED BUILDING ENVELOPE
LOT 9
LOT AREA = 17,997 SF
S37°20'04"E 60.73'
S52°11'18"E 124.41'
N52°48'35"W 125.50'
N37°21'00"W 144.80'
10.0'
28.0'
18.0'
15.26'
18.5'
24.5'
10'
20.0'
47.01'
53.08'
20'
82.66'
60.0'
PRIVATE S.S.E.
E.V.A.E., PRIVATE ACCESS (INGRESS/EGRESS), AND PRIVATE UTILITY EASEMENT FOR THE BENEFIT OF LOT 10
6.83' PRIVATE S.S.E. FOR THE BENEFIT OF LOT 10
5' PUBLIC UTILITY AND DRAINAGE EASEMENT
PROPERTY LINE
PROPERTY LINE
PROPERTY LINE
S52°48'35"E 90.55'
COBBLEHILL PLACE

LEGEND
- TREE TO BE REMOVED
- TREE TO BE REMOVED-REPLACED PER RESOURCE MANAGEMENT DISTRICT PERMIT PLN# 041-101-260
- REPLACED TREE LOCATION PER LANDSCAPE PLANS
- EXISTING TREE TO REMAIN, PROTECT IN PLACE
- PROPOSED BUILDING ENVELOPE

LOT 9
SITE PLAN
SCALE: 1"=10'

DRAWING NAME: K:\En995\950168\dwg\CD\Lot_9\C9.30-HECDSP.dwg
PLOT DATE: 10-09-18 PLOTTED BY: Nat

BLD2016-00160

CORNERSTONE EARTH GROUP

Date: November 15, 2018
Project No.: 230-1-6

Prepared For: Mr. Jack Chamberlain
TICONDEROGA PARTNERS, LLC
655 Skyway, Suite 230
San Carlos, California 94070

Re: Geotechnical Consultation and
Response to County of San Mateo
Geotechnical Comment
Highlands Estates (Lots 9 and 10)
San Mateo, California

County of San Mateo Geotechnical File Number
BLD2016-00158--00164

RESUBMITTAL

NOV 20 2018

San Mateo County
Building Inspection

Dear Mr. Chamberlain:

As requested, this letter presents our geotechnical consultation and response to the recent final County of San Mateo geotechnical comment for Lots 9 and 10 for the above referenced project, received via email on October 30, 2018. Following the email from Ms. Camille Leung, on October 31, we had a phone call with yourself, BKF, and San Mateo County staff (Ms. Sherry Liu and Ms. Camille Leung) to discuss the final review comment and our recommendations to address the comment. This letter documents our response to the comment and geotechnical recommendations.

Our services were performed in accordance with our proposal and agreement, dated April 20, 2016. As you know, our firm prepared a report for this project, titled "Updated Geotechnical Investigation, Highland Estates Lots 5 through 11, Ticonderoga Drive/Cobblehill Place/Cowpens Way, San Mateo, California" dated October 30, 2015. Our Geotechnical Review of Foundation and Civil Plans for Lots 9 to 11 were presented in three letters (one for each lot) dated December 2, 2016. We also prepared a document titled "Recommended Standard Operating Procedure (SOP) for NOA Intrusive Work, Lots 9 to 11, Highland Estates" dated March 17, 2017. We have previously prepared a letter titled "Response to County of San Mateo Planning Comments – Conditions 37 and 38, San Mateo Highlands (Lots 9 to 11)" dated September 25, 2017. We also prepared at letter titled, "Geotechnical Consultation and Response to County of San Mateo Geotechnical Comments, San Mateo Highlands (Lots 9 to 10) dated July 8, 2018. Additionally, we prepared a letter titled "Response to County of San Mateo Planning Comments Dated September 5, 2018 on Lots 5 to 11" dated September 21, 2018.

Response to Comment October 30, 2018 for Lot 9 and 10

Comment #1: *As the slope below the riprap is 2:1 as shown on BKF Sheet C9.71 for Lot 9 (dated 10-8-18), if water must be discharged across the face of a steep fill slope, then County requires the implementation of one of the following measures:*

1. *Construction of a type of impermeable barrier utilized to isolate the surface waters from the fill material. NOTES: This measure will need to be shown on the civil plans and require another round of revision and review. If earth materials for fill construction are of a type that creep at a 2:1 slope, then a hard grouted rock channel may not be a good solution.*

   OR

2. *Implementation of an Annual Monitoring requirement over 5 years, specifically for year 1, 2 and 5, that would allow visual detection and mandatory correction of any problems that become evident with this proposed drainage system design. NOTES: As drainage is shared between Lots 9 and 10, cost of monitoring could also be shared by the 2 homeowners. This measure will not require another round of plan revision or review but a legal mechanism will need to applied prior to sale OR at the time of Final Inspection, whichever is earliest.*

Please let us know which measure you intend to implement to proceed with permits for these lots.

CEG Response:

As we discussed, the project owner would like to implement the first option to address the above comments. As shown on Sheets C9.71 and C9.93 of the project Civil Plans, the rip rap slope protection will be underlain Marifi FW 700 geotextile fabric or approved equal. We do not recommend the rip rap be hard grouted because that will reduce rock's function of dissipating energy and slowing down the water after being discharged into the rock lined channel. As an alternative to grouting the rock to create an impermeable barrier to isolate the surface water from the underlying fill material, we recommend placing a select fill material consisting of quarry fines mixed with cement beneath the rip rap and geotextile fabric. We have made revisions to Sheets C9.71, C9.91 and C9.93 (see attached) showing the thickness and lateral extent of the select fill material beneath the rock lined channel. We recommend that the Quarry Fines from Stevens Creek Quarry be mixed with bulk cement on-site, moisture conditioned and compacted as recommended in our report. We recommend about 3 percent cement (i.e. 4 pounds of cement per cubic foot of Quarry Fines, compacted in-place). The spreading of the cement would likely need to be done by hand at the job site prior the placement in the fill. Our representative should be on-site during placement to verify the percentage of cement being used in the fill as well as monitoring mixing of the cement, moisture conditioning, and compaction. The material should be compacted within 2 to 4 hours of the initial mixing of the cement. The cement treated select fill material would not be subject to soil creep.

Closure

We hope this provides the information you need at this time. Recommendations presented in this letter have been prepared for the sole use of Ticonderoga Partners, LLC specifically for the property at 2184 and 2185 Cobblehill Place (Lots 9 and 10) in San Mateo, California. Our professional services were performed, our findings obtained, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices at this time and location. No warranties are either expressed or implied.

If you have any questions or need any additional information from us, please call and we will be glad to discuss them with you.

Sincerely,

Cornerstone Earth Group, Inc.

Scott E. Fitinghoff, P.E., G.E.
Senior Principal Engineer

SEF:sef

Addressee (1 by email)

Attachments: Revised Civil Plan Sheets C9.71, C9.91 and C9.93

CORNERSTONE
EARTH GROUP

Date:	September 21, 2018
Project No.:	230-1-6
Prepared For:	Mr. Jack and Noel Chamberlain **TICONDEROGA PARTNERS, LLC** 655 Skyway, Suite 230 San Carlos, California 94070
Re:	Response to County of San Mateo Planning Comments Dated September 5, 2018 on Lots 5 to 11 San Mateo Highlands San Mateo, California

Dear Mr. Chamberlain:

As requested, this letter presents our response to the County of San Mateo, Planning and Building Department comments received in an email from Ms. Camille Leung on September 5, 2018 for the above referenced project. Our services were performed in accordance with our proposal and agreement, dated April 20, 2016. As you know, our firm prepared a report for this project, titled "Updated Geotechnical Investigation, Highland Estates Lots 5 through 11, Ticonderoga Drive/Cobblehill Place/Cowpens Way, San Mateo, California" dated October 30, 2015. Additionally, our firm has provided many follow-up letters on this project as requested by the Planning Department. The most recent comments are reiterated below with a response to each one of them.

Response to Comments

Comment #1: *LOT 11 - 1. In Cornerstone's report of 10/30/15 p.18, the geotechnical engineer of record recommended existing fills (shown in Figure 9 the same report) to be removed in the proposed driveway and slab-on-grade. Please estimate the volume of the removal, as well as any fill that may be required following removal.*

Response: Based on our review, we have made an estimate on the volume of fills removal during the mitigation grading and fill that will be required to backfill the over-excavations in the table below. This table also includes our estimate of NEF (None Expansive Fill) to be placed beneath the driveway and garage slabs-on-grade areas. The volume estimates were made by dividing the driveway and garage areas into sublots and projecting the depth of fill from the geotechnical exploration data from the project geotechnical report. It is noted that the actual over-excavation depths (and volumes) will be determined in the field by our representative during grading based on the soil/bedrock conditions observed and they may vary from the estimates summarized below. The estimates below relate to geotechnical mitigation of the undocumented fill and expansive soil conditions and are somewhat independent of the earthwork summary provided on Sheet C11.10 of the project plans.

Lot 11 – Summary of Earthwork Volumes for Driveway & Garage Over-Excavation and Re-Compaction of Undocumented Fill and Add NEF						
Area: Driveway (D) or Garage (G)	Over-excavation (OX) Existing Fill from E.G. to Bottom of Fill [yd^3]	Re-Use Soil from Bottom of OX to Bottom of NEF [yd^3]	Add More Soil to Adjust for ~15% compaction shrinkage of Undocumented Fill [yd^3]	Add Soil to get to Bottom of NEF [yd^3]	Off-haul Extra Soil (-) or Import (+) [yd^3]	Import (+) NEF (8" AB) [yd^3]
D-1	83	62	9	0	-12 (off-haul)	14
D-2	129	64	10	0	-55 (off-haul)	22
D-3	98	61	9	0	-28 (off-haul)	16
D-4	57	43	7	0	-7 (off-haul)	4
G-1	152	152	23	13	+36 (import)	6
Total [yd^3]	519	382	58	13	-66 (off-haul)	+62(import)

Comment #2: *LOT 11 - 2. In the Civil Plans, please show that the riprap for the outfall will be keyed into the bedrock, as stated in the Geo letter of 8/10/2018. Please show the location of sandstone (an alternative to bedrock) in plan-view relative to location of outfall.*

Response: Please see response memo by BKF dated September 20, 2018.

Comment #3: *LOT 5-8 - 3. Please explain "slope mitigation export credit". Why are these cut volumes subtracted from other cut volumes? Also, the total excavation volumes for Lots 5-8 for slope repair do not match estimate provided in 7/8/2018 letter from Cornerstone. Please clarify. Additionally, the volume of imported fill needed for slope repairs needs to be added to overall grading calculations. The values shall be consistent with the 7/8/2018 letter from Cornerstone, or an explanation of the discrepancies must be provided, along with evidence that Cornerstone has reviewed and approved the associated changes.*

Response: Please see response memo by BKF dated September 20, 2018.

Comment #4: *LOT 9-11 (outfall riprap) - 4. The stormwater outfall rock riprap uses CASQA's EC-10 as guidance. EC-11, "Slope Drains", is also relevant, given the hillside on which this feature will be located. However, we note that EC-9, 10, and 11 are for "Temporary concentrated flow conveyance controls", as stated in CASQA's Handbook. As the proposed drainage infrastructure is for permanent use, alternative design guidance must be followed.*

Response: Please see response memo by BKF dated September 20, 2018.

Comment #5: *LOT 8-11 - 5. The Civil plans must show the extent of earth work required to ensure the stability of all affected areas, as discussed by Sherry and Scott F. during that last round of comments. To this end, a simplified geologic plan overlaid on the proposed site plan, showing all areas where fill may need to be removed, must be provided.*

Response: Please see response memo by BKF dated September 20, 2018.

Closure

We hope this provides the information you need at this time. Information and opinions presented in this letter have been prepared for the sole use of Ticonderoga Partners, LLC specifically for the properties at Lots 5 to 11 of the Highland Estates project in San Mateo, California. Our professional services were performed, our findings obtained, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices at this time and location. No warranties are either expressed or implied.

If you have any questions or need any additional information from us, please call and we will be glad to discuss them with you.

Sincerely,

Cornerstone Earth Group, Inc.

Scott E. Fitinghoff, P.E., G.E.
Senior Principal Engineer

SEF:sef

Addressee (1 by email)

BKF 100+ YEARS
ENGINEERS . SURVEYORS . PLANNERS

TECHNICAL MEMORANDUM

Date: September 20, 2018 **BKF Job Number: 19950158-20**

Deliver To: Mr. Steve Monowitz
Director of Building and Planning
San Mateo County
Planning & Building Department
455 County Center, 2nd Floor
Redwood City, CA 94063

cc: Jack Chamberlain
Pete Bentley, SMCo. Bldg.
Camille Leung, SMCo. Planning
Scott Fitinghoff, CEG
Jonathan Tang, BKF

From: Roland Haga, PE, PLS, Leed®AP
Vice President, BKF Engineers

Subject: Highland Estates Lots 5-11 Response to County Comments

The purpose of this memorandum is to present of responses to the County of San Mateo comments received on September 9, 2018 via email for Highland Estates Lots 5 through 11. BKF responses to comments are in bold text.

LOT 11

1. *In Cornerstone's report of 10/30/15 p.18, the geotechnical engineer of record recommended existing fills (shown in Figure 9 the same report) to be removed in the proposed driveway and slab-on-grade. Please estimate the volume of the removal, as well as any fill that may be required following removal.*

   Response: Please see response memo by Cornerstone Earth Group.

2. *In the Civil Plans, please show that the riprap for the outfall will be keyed into the bedrock, as stated in the Geo letter of 8/10/2018. Please show the location of sandstone (an alternative to bedrock) in plan-view relative to location of outfall.*

   Response: Please see revised sheets C11.40 and C11.71 for outlet rock riprap keyed into the sandstone. Please also see revised sheets C11.30 and C11.40 for approximate location of sandstone in plan-view relative to the location of outfall.

   Additionally, per a meeting with Camille Leung and Sherry Liu on October 2, 2018, the following remaining items as discussed are revised and reflected in the Lot 9, 10 and 11 plans:

   a. Revised the details for the rock rip-rap on lots 9, 10 and 11 and added sub-drainage piping at the rock-rip-rap keyways.

b. Added additional sheet to the Lots 9, 10 and 11 improvement plans depicting the geotechnical information from the Cornerstone Earth Group Geotechnical Report onto a site plan with the proposed grading. This sheet will also be added to the each set of plan sets for lots 5 through 8.

LOT 5-8

1. *Please explain "slope mitigation export credit". Why are these cut volumes subtracted from other cut volumes? Also, the total excavation volumes for Lots 5-8 for slope repair do not match estimate provided in 7/8/2018 letter from Cornerstone. Please clarify. Additionally, the volume of imported fill needed for slope repairs needs to be added to overall grading calculations. The values shall be consistent with the 7/8/2018 letter from Cornerstone, or an explanation of the discrepancies must be provided, along with evidence that Cornerstone has reviewed and approved the associated changes.*

Response: The export credit is earthwork cut material associated with site strippings and shrinkage factors associated with the slope mitigation requirement on Lots 5 through 8 and as identified and referenced in the July 8, 2017 Geotechnical letter from Cornerstone Earth Group[1]. The following is a summary of the unsuitable materials from site strippings and earthwork shrinkage for lots 5-8:

	Lot 5	Lot 6	Lot 7	Lot 8	5-8 Total
Slope Mitigation Cut (CY) from Site Stripping and Shrinkage	520 Export	580 Export	660 Export	1,220 Export	2,980 Export

Taking lots 5-8 grading and the slope mitigation cut from site stripping and shrinkage factors, the resulting grading for lots 5-8 are as follows:

	Lot 5	Lot 6	Lot 7	Lot 8	5-8 Total
Cut (CY)	1,740	2,030	2,170	2,080	8,020
Slope Mitigation Cut (CY) from Site Stripping and Shrinkage	520	580	660	1,220	2,980
Fill (CY)	0	0	40	90	130
Net (CY)	**1,220 Export**	**1,450 Export**	**1,470 Export**	**770 Export**	**4,910 Export**

The total earthwork export from Lots 5-8 is 4,910 cubic yards, equivalent to approximately 409 total truck trips. Taking into consideration unsuitable materials associated with slope mitigation site strippings and shrinkage, the total earthwork export from Lots 5-8 is 7,890 cubic yards, equivalent to approximately 658 total truck trips.

The total earthwork export from Lots 9-11 is 800 cubic yards (per Improvement Plans dated May 10, 2018), equivalent to approximately 67 total truck trips.

The associated truck trips and off-haul weekly durations for Lots 5-11 with and without the unsuitable materials associated with slope mitigation site strippings and shrinkage are as follows:

	Lots 5-11 5,710 CY Export (without unsuitable material from slope mitigation) Off-Haul Truck Duration	Lots 5-11 8,690 CY Export (with unsuitable material from slope mitigation) Off-Haul Truck Duration
5 Trucks Per Day	19 to 20 weeks	28 to 29 weeks
10 Trucks Per Day	9 to 10 weeks	14 to 15 weeks
15 Trucks Per Day	6 to 7 weeks	9 to 10 weeks
20 Trucks Per Day	4 to 5 weeks	7 to 8 weeks

At 20 trucks per day, the off-hauling associated with the Lots 5-11 export is less than the traffic volumes of 68 daily project operations (prorated from twelve lots for seven lots, Lots 5-11) trips per day[2] and is significantly less than the project traffic volumes from the daily project operations over a 7-8 week period. This is consistent with what was analyzed as part of the Recirculated Draft EIR Section 2.3 Environmental Analysis, Transportation[3].

LOT 9-11 (outfall riprap)

1. *The stormwater outfall rock riprap uses CASQA's EC-10 as guidance. EC-11, "Slope Drains", is also relevant, given the hillside on which this feature will be located. However, we note that EC-9, 10, and 11 are for "Temporary concentrated flow conveyance controls", as stated in CASQA's Handbook. As the proposed drainage infrastructure is for permanent use, alternative design guidance must be followed.*

Response: The CASQA EC-10 Velocity Dissipation Devices is a design standard for outlet protection based on flow discharge for sediment and erosion control. The basis and standards of CASQA are established and reference equivalent design standards for permanent flow discharge, these include:

- **Manual of Standards of Erosion and Sediment Control Measures, Association of Bay Area Governments (ABAG), May 1995[4].**
- **Stormwater Quality Handbooks Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000[6].**

CASQA EC-10 Velocity Dissipation Devices is consistent with permanent concentrated flow discharge conveyance controls and is consistent with the ABAG Standards and Caltrans BMPs for sediment and erosion control. BKF calculations and design are based on and exceed these standards in accordance with our professional recommendations. In addition, San Mateo

County Public Works Department has reviewed, commented and approved our calculations and design in May 2018.

LOT 8-11

1. *The Civil plans must show the extent of earth work required to ensure the stability of all affected areas, as discussed by Sherry and Scott F. during that last round of comments. To this end, a simplified geologic plan overlaid on the proposed site plan, showing all areas where fill may need to be removed, must be provided.*

   Response: Please see sheets C5.91, C5.92, C6.91, C6.92, C7.91, C7.92, C8.91 and C8.92 for site plan extents of earthwork required as part of the slope mitigation on Lots 5-8. See sheets C9.91, C9.92, C9.93, C10.91, C10.92, C10.93, and C11.91 for site plan extents of earthwork required as part of the slope mitigation on Lots 9-11.

Pending resolving the above remaining items, we do not see any other issues that have brought forth to date, specifically to lots 9, 10 and 11 that would allow San Mateo County from issuing Building Permits for lots 9, 10 and 11. Upon your final review, please let me know if you have any questions.

Enclosures:

1. Summary of Estimated Soil/Bedrock Earthwork, Quantities Related to Geotechnical Mitigation, Highland Estates (Lots 5 to 8) Ticonderoga Drive, San Mateo, California, prepared by Cornerstone Earth Group, dated July 8, 2017.
2. Transportation Impact Assessment for Highland Estates, by Fehr & peers, dated September 2008.
3. Revisions to the Recirculated Draft Environmental Impact Report Section 2.3 Environmental Analysis, Transportation, dated December 2009.
4. Appendix G Design of Outlet Protection of the Manual of Standards of Erosion and Sediment Control Measures, Association of Bay Area Governments (ABAG).
5. Cover Sheet for Stormwater Quality Handbooks Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), dated November 2000.

M I G

memo san jose

to **Jack Chamberlain, Ralph Osterling**

from **Tay Peterson**

re **Highland Estates Lots 9, 10, 11 Biological Mitigation Compliance**

date **12/17/2018**

This memorandum report summarizes the results of pre-construction surveys completed for the Highland Estates project in the San Mateo Highlands, specifically for lots 9 and 10 at the end of Cobblehill Place and lot 11 at the end of Cowpens. The surveys were completed on November 26, 2018 to comply with biology mitigation measures included in the Conditions of Approval for the project. The weather was clear, calm, and warm (about 65 degrees F).

The following measures are included in the Conditions of Approval for the project:

Mitigation Measure BIO-2a: *No earlier than 30 days prior to the commencement of construction activities, a survey shall be conducted to determine if active woodrat nests (stickhouses) with young are present within the disturbance zone or within 100 feet of the disturbance zone. If active woodrat nests (stickhouses) with young are identified, a fence shall be erected around the nest site adequate to provide the woodrat sufficient foraging habitat at the discretion of a qualified biologist and based on consultation with the CDFG. At the discretion of the monitoring biologist, clearing and construction within the fenced area would be postponed or halted until young have left the nest. The biologist shall serve as a construction monitor during those periods when disturbance activities will occur near active nest areas to ensure that no inadvertent impacts on these nests will occur.*

If woodrats are observed within the disturbance footprint outside of the breeding period, individuals shall be relocated to a suitable location within the open space by a qualified biologist in possession of a scientific collecting permit. This will be accomplished by dismantling woodrat nests (outside of the breeding period), to allow individuals to relocate to suitable habitat within the adjacent open space.

Mitigation Measure BIO-2b: *No earlier than two weeks prior to commencement of construction activities that would occur during the nesting/breeding season of native bird species potentially nesting/roosting on the site (typically February through August in the project region), a survey for nesting birds shall be conducted by a qualified biologist experienced with the nesting behavior of bird species of the region. The intent of the survey would be to determine if active nests of special-status bird species or other species protected*

by the Migratory Bird Treaty Act and/or the California Fish and Game Code are present in the construction zone or within 500 feet of the construction zone. The surveys shall be timed such that the last survey is concluded no more than two weeks prior to initiation of construction or tree removal work. If ground disturbance activities are delayed, then an additional pre-construction survey shall be conducted such that no more than two weeks will have elapsed between the last survey and the commencement of ground disturbance activities. A report is required.

Mitigation Measure BIO-2c: *Prior to the commencement of construction activities during the breeding season of native bat species in California (generally occurs from April 1 through August 31), a focused survey shall be conducted by a qualified bat biologist to determine if active maternity roosts of special-status bats are present within any of the trees proposed for removal. Should an active maternity roost of a special-status bat species be identified, the roost shall not be disturbed until the roost is vacated and juveniles have fledged, as determined by the biologist. Once all young have fledged, then the tree may be removed. Species-appropriate replacement roosting habitat (e.g., bat boxes) shall be provided should the project require the removal of a tree actively used as a maternity roost. The replacement roosting habitat shall be subject to the approval of the CDFG.*

Mitigation Measure BIO-2d: *Immediately preceding initial ground disturbance activities on Lot 11, a pre-construction clearance survey shall be conducted by a qualified biologist for California red-legged frogs. The survey shall be conducted to determine whether individual California red-legged frogs are present within the disturbance boundary. Should a California red-legged frog be observed during the clearance survey, all construction activities on Lot 11 shall be immediately halted and the USFWS shall be immediately contacted. Under no circumstances shall a California red-legged frog be collected or relocated, unless USFWS personnel or their agents implement the measure. Construction-related activities may resume once the frog has naturally left the lot or has been relocated by a permitted biologist (authorized by the USFWS).*

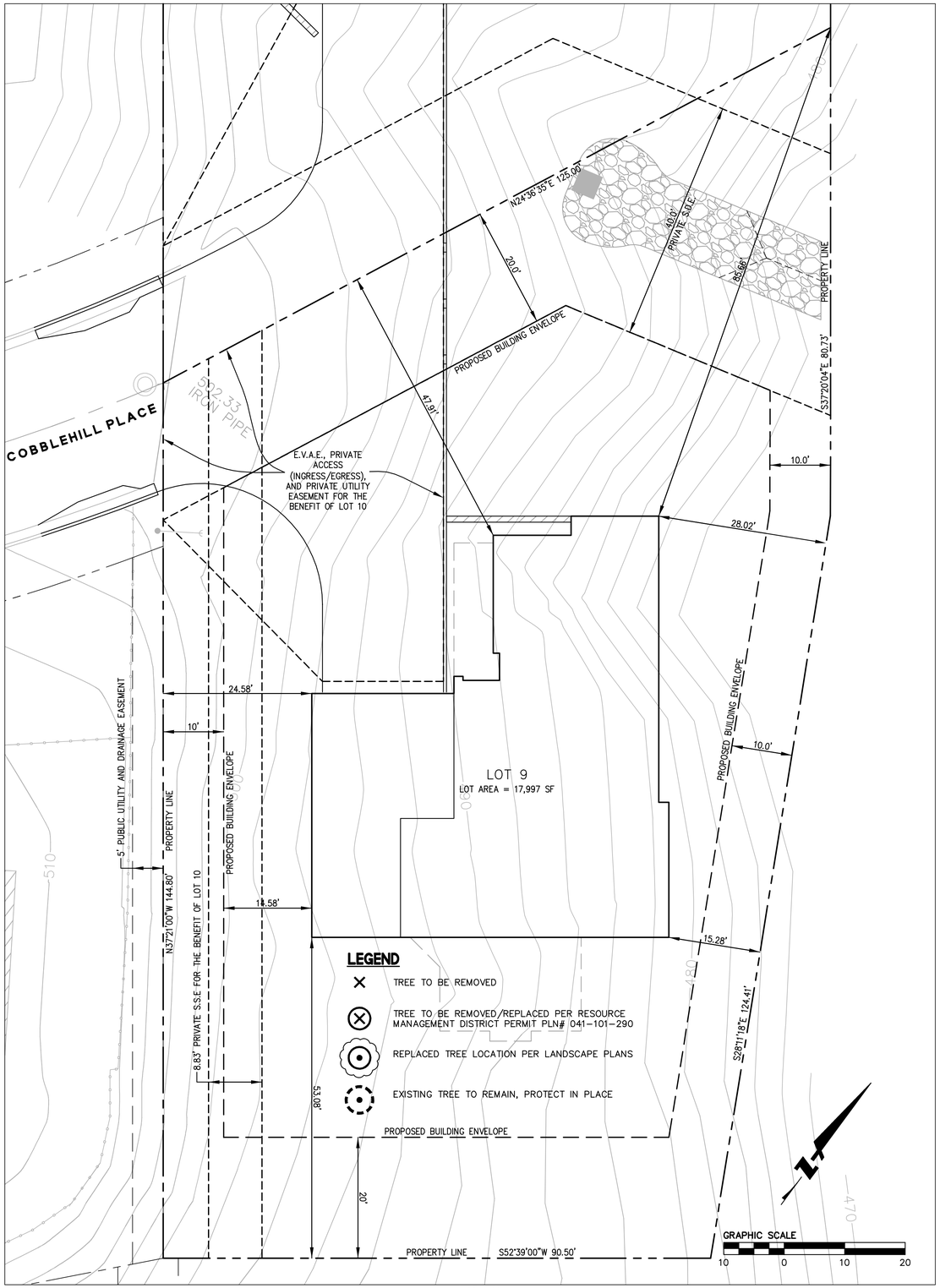
The pre-construction survey occurred in November, outside of the breeding season for birds and bats. Construction activities that occur between now and February 1, 2019 are not required to be preceded by a nesting bird survey. Construction activities that occur between now and April 1, 2019 are not required to be preceded by a roosting bat survey. It is of note that the lots do not currently contain trees with loose bark or cavities that would provide suitable roost sites for bats, so bats roosts, including maternity roosts, are not expected to occur on the lots.

Surveys for California red-legged frog on Lot 11 were conducted on November 26th, 2018. The first rains of the season occurred about five days prior to the survey. Frogs often start to move through upland habitat after the first rain. The biologist carefully paced along wandering transects within the upland areas of Lot 11, outside of the riparian area that is demarcated by orange fencing. No frog species were found

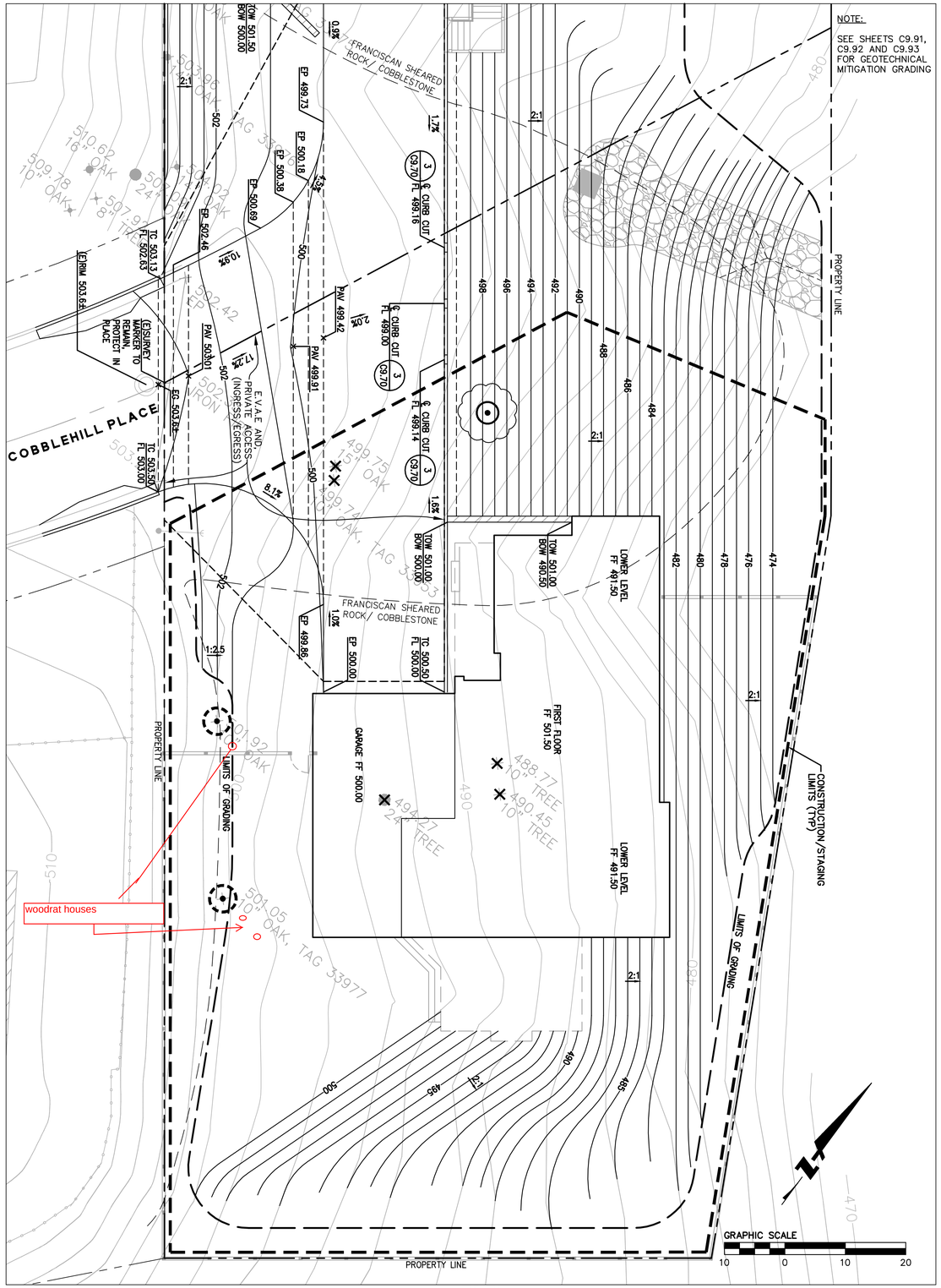
during the survey. An additional survey will be required prior to the start of construction. The fencing demarcating the riparian area will need to be repaired immediately prior to construction activities. The signage is still legible.

In addition, woodrat houses were relocated from lots 9, 10, and 11 in 2015 in compliance with Mitigation Measure BIO-2a and under a woodrat relocation plan submitted to the California Department of Fish and Wildlife (CDFW). A report of the results was also submitted. The parcels were re-checked for woodrat houses on November 26, 2018. There are three new woodrat houses in tree debris left on the ground after tree trimming was completed within the construction footprint on Lot 9 sometime between June and November 2018. These houses will need to be protected by a minimum of a ten-foot construction buffer until occupied houses can be relocated in late summer 2019 using the methods previously approved by CDFW, and any construction on Lot 9 will require a biological monitor to be present to comply with the Conditions of Approval (see attached map). Similarly, on Lot 11 there is a pile of bay tree branches near the creek, outside of the construction footprint, that contains a woodrat house (see attached map). This will need to be protected by a minimum ten-foot buffer during construction. The buffers/fencing should be installed immediately prior to construction and a biologist should also provide worker education about them as part of the biological monitoring.

In summary, at this time the project has complied with Mitigation Measures BIO-2a, BIO-2b, BIO-2c, and BIO 2d, but construction on Lots 9 and 11 are required to include woodrat protection measures as indicated in measure BIO-2a, additional surveys will be required immediately prior to the start of construction, and protective fencing will need to be installed/repaired.



LOT 9
SITE PLAN
SCALE: 1"=10'



LOT 9
CLEARING, CONSTRUCTION, AND GRADING PLAN
SCALE: 1"=10'

DRAWING NAME: K:\Eng95\95016B\dwg\CD\Lot_9\C9.30-HECDSP.dwg
PLOT DATE: 10-09-18
PLOTTED BY: holt

255 SHORELINE DRIVE, SUITE 200
REDWOOD CITY, CA 94065
PHONE: (650) 482-6300
FAX: (650) 482-6399
BKF ENGINEERS | SURVEYORS | PLANNERS

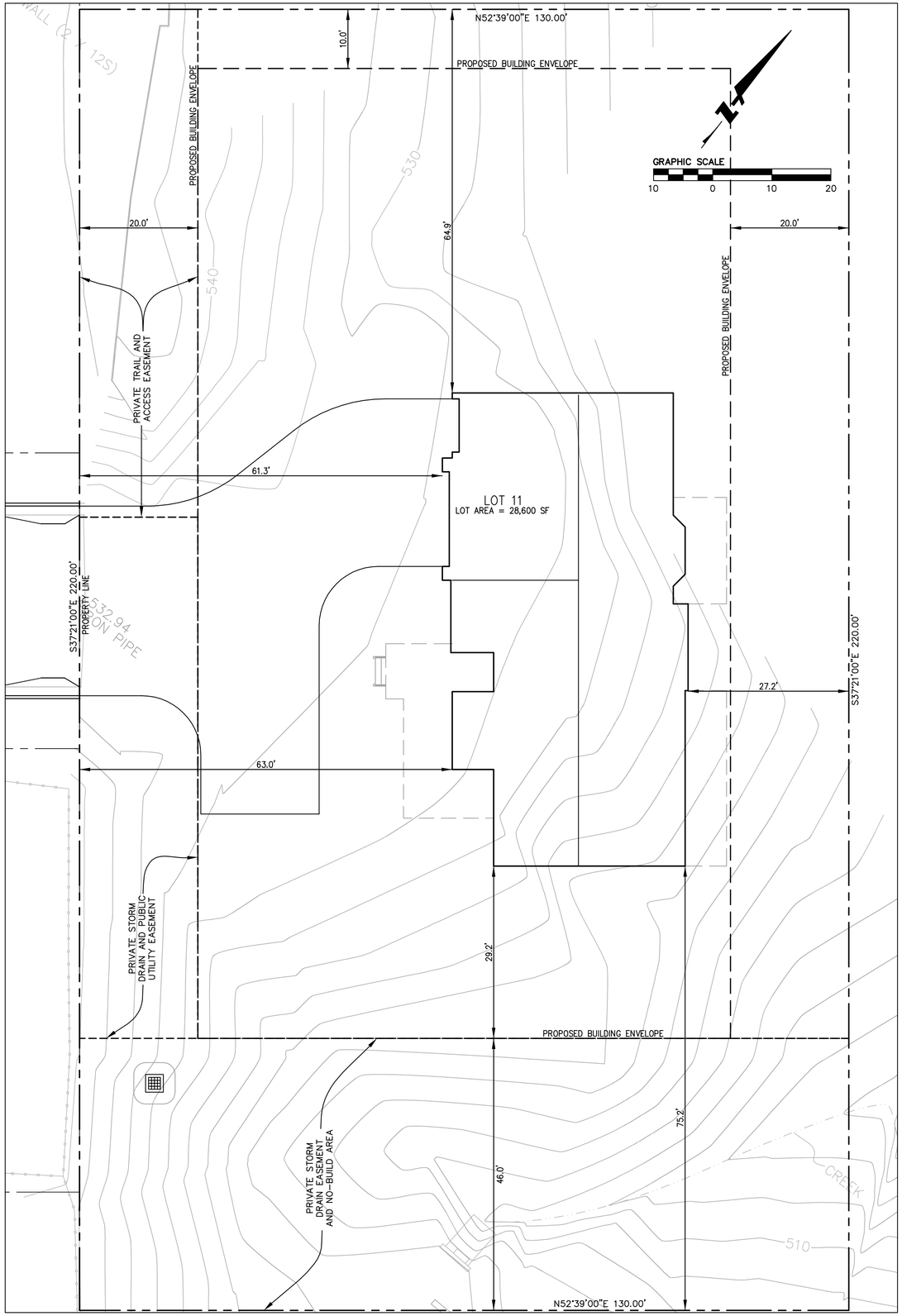
REGISTERED PROFESSIONAL ENGINEER SHAWN HUNG TANG No. 087726 CIVIL STATE OF CALIFORNIA

HIGHLAND ESTATES
LOT 9 IMPROVEMENT PLANS
SITE & CLEARING, CONSTRUCTION AND GRADING PLANS
CITY OF SAN MATEO — SAN MATEO COUNTY, CALIFORNIA

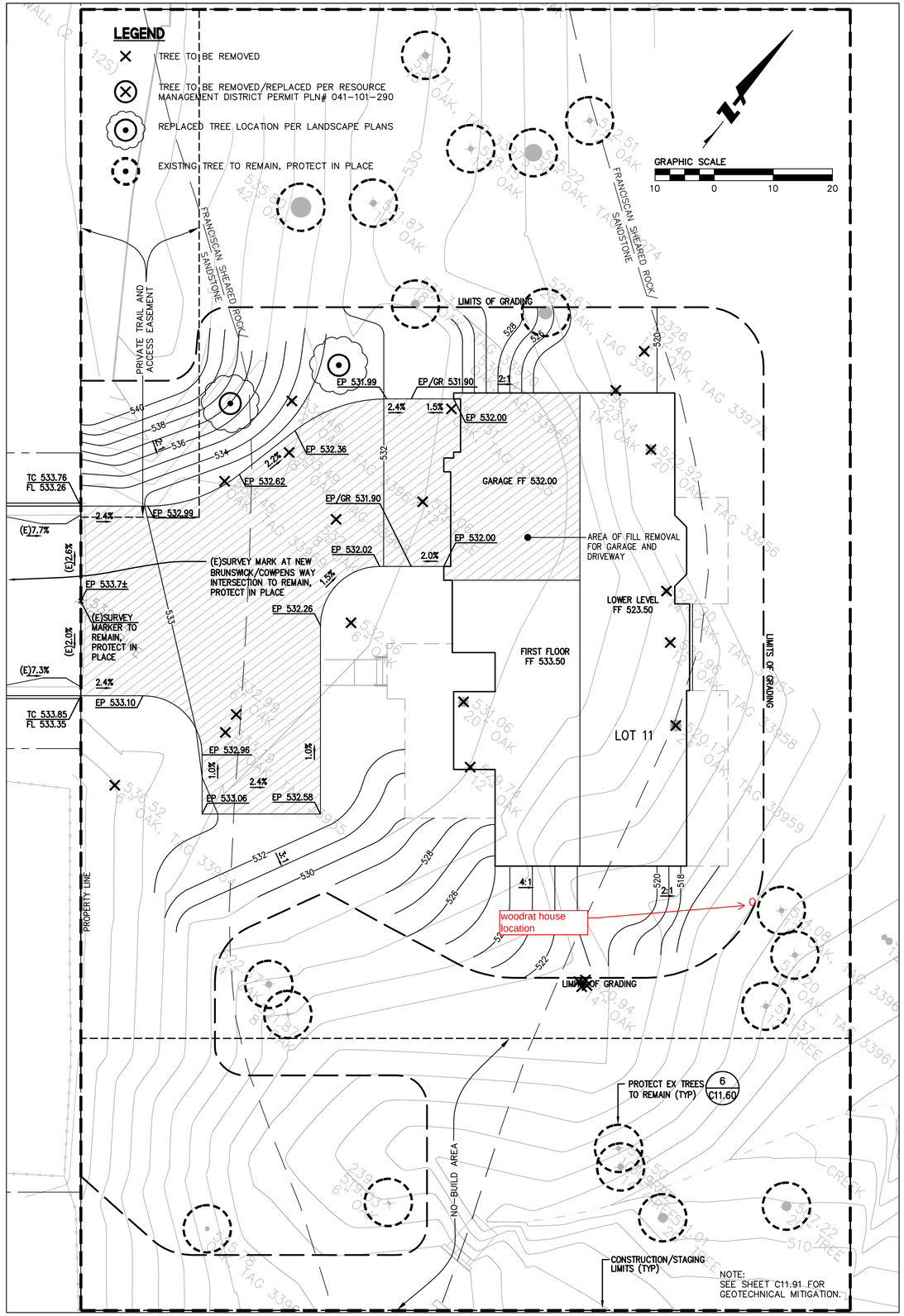
No.	Revisions

Date 10/8/2018
Scale AS SHOWN
Design JT
Drawn LE
Approved RH/JT
Job No 95016B-20

Sheet Number:
C9.30
OF



LOT 11
SITE PLAN
SCALE: 1"=10'



LOT 11
CLEARING, CONSTRUCTION, AND GRADING PLAN
SCALE: 1"=10'

DRAWING NAME: K:\Eng95\95016B\dwg\CD\Lot_11\C11.30-HECDSP.dwg
PLOT DATE: 10-08-18
PLOTTED BY: holt

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255 SHORELINE DRIVE, SUITE 200
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REGISTERED PROFESSIONAL ENGINEER SIDHARTHA MAHANTANG No. 087726 CIVIL STATE OF CALIFORNIA

HIGHLAND ESTATES
LOT 11 IMPROVEMENT PLANS
SITE & CLEARING, CONSTRUCTION AND GRADING PLANS
CITY OF SAN MATEO — SAN MATEO COUNTY, CALIFORNIA

Revisions	No.

Date	10/8/2018
Scale	AS SHOWN
Design	JT
Drawn	LE
Approved	RH/JT
Job No	95016B-20

Sheet Number:
C11.30
OF

MIG

memo san jose

to **Jack Chamberlain, Ralph Osterling**

from **Tay Peterson**

re **Highland Estates Lots 9, 10, 11 Biological Mitigation Compliance**

date **6/5/2018**

This memorandum report summarizes the results of pre-construction surveys completed for the Highland Estates project in the San Mateo Highlands, specifically for lots 9 and 10 at the end of Cobblehill Place and lot 11 at the end of Cowpens. The following measures are included in the Conditions of Approval for the project:

Mitigation Measure BIO-2b: *No earlier than two weeks prior to commencement of construction activities that would occur during the nesting/breeding season of native bird species potentially nesting/roosting on the site (typically February through August in the project region), a survey for nesting birds shall be conducted by a qualified biologist experienced with the nesting behavior of bird species of the region. The intent of the survey would be to determine if active nests of special-status bird species or other species protected by the Migratory Bird Treaty Act and/or the California Fish and Game Code are present in the construction zone or within 500 feet of the construction zone. The surveys shall be timed such that the last survey is concluded no more than two weeks prior to initiation of construction or tree removal work. If ground disturbance activities are delayed, then an additional pre-construction survey shall be conducted such that no more than two weeks will have elapsed between the last survey and the commencement of ground disturbance activities. A report is required.*

Mitigation Measure BIO-2c: *Prior to the commencement of construction activities during the breeding season of native bat species in California (generally occurs from April 1 through August 31), a focused survey shall be conducted by a qualified bat biologist to determine if active maternity roosts of special-status bats are present within any of the trees proposed for removal. Should an active maternity roost of a special-status bat species be identified, the roost shall not be disturbed until the roost is vacated and juveniles have fledged, as determined by the biologist. Once all young have fledged, then the tree may be removed. Species-appropriate replacement roosting habitat (e.g., bat boxes) shall be provided should the project require the removal of a tree actively used as a maternity roost. The replacement roosting habitat shall be subject to the approval of the CDFG.*

Mitigation Measure BIO-2d: *Immediately preceding initial ground disturbance activities on Lot 11, a pre-construction clearance survey shall be conducted by a qualified biologist for*

California red-legged frogs. The survey shall be conducted to determine whether individual California red-legged frogs are present within the disturbance boundary. Should a California red-legged frog be observed during the clearance survey, all construction activities on Lot 11 shall be immediately halted and the USFWS shall be immediately contacted. Under no circumstances shall a California red-legged frog be collected or relocated, unless USFWS personnel or their agents implement the measure. Construction-related activities may resume once the frog has naturally left the lot or has been relocated by a permitted biologist (authorized by the USFWS).

The nesting bird survey for lots 9, 10, and 11 was completed by a MIG biologist on May 29, 2018[h]. No nests, nesting, or breeding behavior was observed. The survey assures compliance with Mitigation Measure BIO-2c, however, if construction activities are delayed past June 12th an additional survey will be required to comply with this measure.

A survey for bat roosts on lots 9, 10, and 11 was completed by a MIG biologist on May 29, 2018. No bat roosts were found. This survey assures project compliance with Mitigation Measure BIO-2c.

Surveys for California red-legged frog on lot 11 were conducted on May 29 and June 4, 2018. No frog species were found in the upland areas of lot 11 that will be impacted by construction activities. Weed control on lot 11 started on June 4, 2018 immediately after the frog survey.

In addition, woodrat houses were relocated from parcels 9, 10, and 11 in 2015 in compliance with Mitigation Measure BIO-2a. In May and June 2018, MIG biologists surveyed parcels 9, 10, and 11 to determine if any new woodrat houses had been built on the lots. No woodrat houses were found in the project footprint. Flagging and fencing delimiting a buffer zone around nearby woodrat houses is still present on the lots. The project remains in compliance with Mitigation Measure BIO-2a. A separate monitoring report for the woodrat relocation activities has already been submitted.

In summary, at this time the project has complied with Mitigation Measures BIO-2a, BIO-2b, BIO-2c, and BIO 2d.

County of San Mateo

Planning and Building Department

Geotechnical Consultant Approval

County Government Center ▪ 455 County Center, 2nd Floor
Redwood City ▪ CA ▪ 94063 ▪ Mail Drop PLN 122
Phone: 650 ▪ 363 ▪ 4161 Fax: 650 ▪ 363 ▪ 4849

Applicant (Owner): HIGHLAND ESTATES DEVELOPMENT I LLC

Geo. File No. BLD2016- (00158 -- 00160)

Site Address: LOTS 9-11

APN: 041101430, 041101440, 041101450

Permit Type: Building

Required by: CSA / XL Date: 12/3/2018

NOTICE TO APPLICANT:
SECTION I of this form must be completed and a copy returned to Geotechnical Section prior to approval of application by the PLanning and Building Department.

SECTION II must be completed and a copy returned to Geotechnical Section prior to final approval of the completed construction by the Planning and Building Department.

IMPORTANT: It is the responsibility of the applicant to ensure that **ALL** geotechnical factors as noted in SECTION 1 have been observed and approved in SECTION II by the applicants' consultant.

FAILURE TO DO SO WILL RESULT IN UNNECESSARY DELAYS PENDING SUCH APPROVAL.

SECTION I CORNERSTONE EARTH GROUP, Inc. has reviewed the development
(Name of legally qualified geotechnical consultant)

Plans prepared for Ticonderoga Partners, a California LLC by: BKF Engineers

Plan No. C9.10 to C9.93, C10.10 to C10.93, and C11.1 to 11.91

Dated: 10/8/2018 Revision: N/A

and find that such plans are in accordance with the recommendations provided by us or presented in our report(s) No. 230-1-5, dated 10-30-2015 with respect to geotechnical factors affecting or affected by the proposed site development. These include include but are not limited to: grading (cuts / fills), surface and subsurface water control measures, foundation design criteria, seismic hazard consideration, slope stability, "restricted from building" areas, and removal and recompaction of undocumented fill, keyways and benching, placement of subdrians, placement of select fill and rip-rap.

Scott Fitinghoff
(Geotechnical Consultant)

12/27/2018
(Date)

REGISTERED PROFESSIONAL ENGINEER
SCOTT E. FITINGHOFF
NO. 2379
EXP. 06/30/20
GEOTECHNICAL
STATE OF CALIFORNIA

COUNTY APPROVAL

Co. Geol. _____ Date: _____

CC: _____

SECTION II CORNERSTONE EARTH GROUP has observed and approved as
(Name of legally qualified geotechnical consultant)

having been done in accordance with their recommendations all applicable work as noted in SECTION 1.

NOTE:
Grading Report Required: ☑ Yes ☐ No

_____
(Geotechnical Consultant)

_____
(Date)

COUNTY APPROVAL

Co. Geol. _____ Date: _____

CC: _____

County of San Mateo
Planning and Building Department

Geotechnical Consultant Approval

County Government Center • 455 County Center, 2nd Floor
Redwood City • CA • 94063 • Mail Drop PLN 122
Phone: 650 • 363 • 4161 Fax: 650 • 363 • 4849

Applicant (Owner): HIGHLAND ESTATES DEVELOPMENT I LLC | Geo. File No. BLD2016- (00158 -- 00160)

Site Address: LOTS 9-11 | APN: 041101430, 041101440, 041101450

Permit Type: Building | Required by: CSA / XL Date: 12/3/2018

NOTICE TO APPLICANT:
SECTION I of this form must be completed and a copy returned to Geotechnical Section prior to approval of application by the PLanning and Building Department.

SECTION II must be completed and a copy returned to Geotechnical Section prior to final approval of the completed construction by the Planning and Building Department.

IMPORTANT: It is the responsibility of the applicant to ensure that **ALL** geotechnical factors as noted in SECTION I have been observed and approved in SECTION II by the applicants' consultant.

FAILURE TO DO SO WILL RESULT IN UNNECESSARY DELAYS PENDING SUCH APPROVAL.

SECTION I CORNERSTONE EARTH GROUP has reviewed the development
(Name of legally qualified geotechnical consultant)

Plans prepared for _____ by: _____

Plan No. _____

Dated: _____ Revision: _____

and find that such plans are in accordance with the recommendations provided by us or presented in our report(s)

No. _____, dated _____ with respect to geotechnical factors affecting or affected by the proposed site development. These include include but are not limited to: grading (cuts / fills), surface and subsurface water control measures, foundation design criteria, seismic hazard consideration, slope stability, "restricted from building" areas, and _____.

_____
(Geotechnical Consultant)

_____
(Date)

COUNTY APPROVAL

Co. Geol. _____ Date: _____

CC: _____

SECTION II CORNERSTONE EARTH GROUP has observed and approved as
(Name of legally qualified geotechnical consultant)

having been done in accordance with their recommendations all applicable work as noted in SECTION 1.

NOTE:
Grading Report Required: ☑ Yes ☐ No

_____
(Geotechnical Consultant)

_____
(Date)

COUNTY APPROVAL

Co. Geol. _____ Date: _____

CC: _____