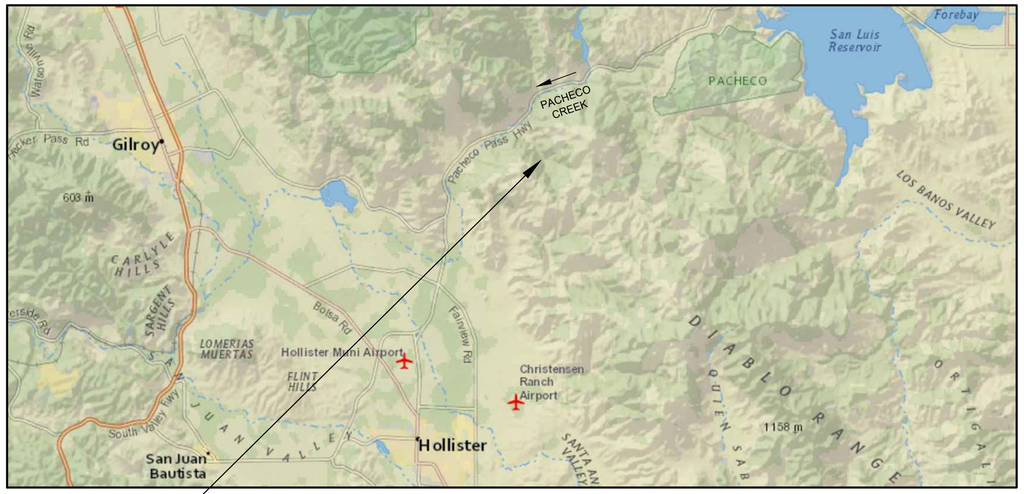
BOURDET RANCH GRADING VIOLATION ABATEMENT PROJECT

SANTA CLARA COUNTY PLN20-139

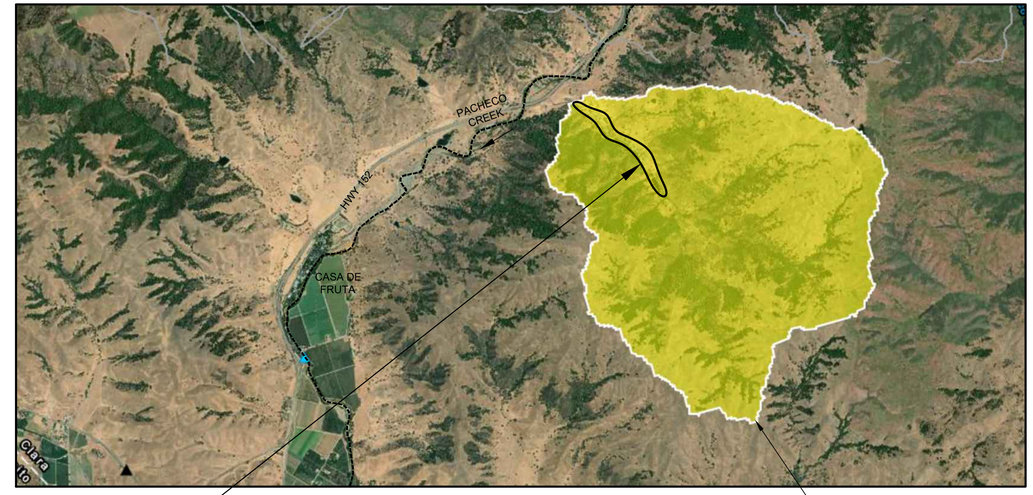
HARPER CANYON CREEK RESTORATION AND RESERVOIR SPILLWAY CHANNEL EROSION PROTECTION

30% DESIGN PLANS



PROJECT LOCATION

REGIONAL MAP
N.T.S. (USGS STREAMSTATS)



PROJECT LOCATION

HARPER CANYON

VICINITY MAP
N.T.S. (USGS STREAMSTATS)

WATERSHED BOUNDARY

GENERAL NOTES

1. TOPOGRAPHIC MAPPING (AERIAL PHOTOGRAMMETRY) WAS PERFORMED BY:
   TOWILL
   2300 CLAYTON ROAD, SUITE 1200
   CONCORD, CA 94520
   PHOTOGRAPHY DATE; JANUARY 29, 2020.
2. SUPPLEMENTAL TOPOGRAPHIC MAPPING WAS PERFORMED BY:
   GEOMORPH DESIGN
   2100 FOURTH STREET, NO. 154
   SAN RAFAEL, CA 94901
   SURVEY DATE; APRIL 8, 2021.
3. ELEVATION DATUM: NAVD88. GEOMORPH DESIGN TIED INTO NGS AA1864 USING THE LEICA GEOSYSTEMS SMARTNET GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS).
4. BASIS OF BEARINGS: NAD83 CALIFORNIA STATE PLANE, ZONE 3. GEOMORPH DESIGN TIED INTO TOWILL'S CONTROL POINT 1108 (FOUND MONUMENT) USING THE LEICA GEOSYSTEMS SMARTNET GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS) NETWORK.
5. CONTOUR INTERVAL IS ONE FOOT. ELEVATIONS AND DISTANCES SHOWN ARE IN DECIMAL FEET.
6. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE 2018 EDITION OF THE STATE OF CALIFORNIA STANDARD SPECIFICATIONS, ISSUED BY THE DEPARTMENT OF TRANSPORTATION (HEREAFTER REFERRED TO AS "STANDARD SPECIFICATIONS").
7. THESE PLANS ARE DEVELOPED TO THE PRELIMINARY DESIGN LEVEL. IF REQUESTED BY OWNER AND/OR AGENCY CONTACTS, REVISIONS MAY BE MADE DURING FINAL PERMITTING AND CONSTRUCTION MANAGEMENT PHASE ACCORDING TO AGENCY SUGGESTIONS AND CONTRACTOR PREFERENCES, SOURCE MATERIAL INFORMATION, ETC., AND DOCUMENTED BY ENGINEER IN CONSTRUCTION PHASE AND CERTIFIED AS-BUILT UPDATES.
8. OWNER:
   LACY BOURDET
   PO BOX 1378
   HOLLISTER, CA 95024
9. AGENCY CONTACTS:
   COUNTY OF SANTA CLARA DEPT OF PLANNING AND DEVELOPMENT: DARRELL WONG, P.E. DARRELL.WONG@PLN.SCCGOV.ORG, (408) 299-5735
   CALIFORNIA DEPT OF FISH AND WILDLIFE: KRISTIN GARRISON KRISTIN.GARRISON@WILDLIFE.CA.GOV
   CENTRAL COAST REGIONAL WATER QUALITY CONTROL BOARD: MARK CASSADY, MARK.CASSADY@WATERBOARDS.CA.GOV
   UNITED STATES ARMY CORPS OF ENGINEERS: GREGORY BROWN, GREGORY.G.BROWN@USACE.ARMY.MIL
10. DESIGN CONSULTANTS:
   ENGINEER: MATT SMELTZER, P.E., GEOMORPHDESIGN, 510-219-1064, FLUVIALGEOMORPH@GMAIL.COM
   BRIAN SHEDDEN, P.E., SHEDDEN ENGINEERING & SURVEYING, INC., 831-325-2692, SHEDDEN.ENGINEERING@GMAIL.COM
   SCOTT WALLS, M.L.A., WALLS LAND + WATER, LLC., 831-246-1718, SCOTT@WALLSLANDWATER.COM
   GUOYUAN LI, PH.D., P.E., 415-322-9826 GUOYUANLI@GMAIL.COM

ABBREVIATIONS

AVG.	AVERAGE
BLDG	BUILDING
CC	CONCRETE
CLSTR	CLUSTER
CY	CUBIC YARDS
DBL	DOUBLE
DIA.	DIAMETER
E	EXISTING
EG	EXISTING GROUND
ELEV.	ELEVATION
EP	EDGE OF PAVEMENT
ETW	EDGE OF TRAVELED WAY
DI	DRAINAGE INLET
FG	FINISHED GRADE
FT	FEET
IR	IRRIGATION
INV	INVERT
MH	MANHOLE
N	NEW
NIC	NOT IN CONTRACT
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
PP	PLASTIC PIPE
RC	RELATIVE COMPACTION
RSP	ROCK SLOPE PROTECTION
SDI	STORM DRAIN INLET
SPK	SPIKE
SF	SQUARE FOOT
TBD	TO BE DETERMINED
TOW	TOP OF WALL
TRPL	TRIPLE
TYP	TYPICAL
UNK	UNKNOWN
UTIL	UTILITY
VLT	VAULT
VLV	VALVE
WSE	WATER SURFACE ELEVATION
XS	CROSS SECTION
YR	YEAR

EARTHWORK NOTES

1. GRADING SUMMARY:
   ESTIMATED EARTH QUANTITIES:

ESTIMATED EARTH QUANITITIES			
	CUT (CY)	FILL (CY)	NET (CY)
RESTORATION REACH	10,569	601	9,968
FORD CROSSING	433	2	431
SPILLWAY CHANNEL	283	128	155
TOTAL	11,286	731	10,555 (OFF HAUL)

THE ABOVE QUANTITIES ARE APPROXIMATE IN-PLACE VOLUMES CALCULATED AS THE DIFFERENCE BETWEEN EXISTING GROUND AND THE PROPOSED FINISH GRADE, PREPARED FOR PERMITTING PURPOSES ONLY. EXISTING GROUND IS DEFINED BY THE TOPOGRAPHIC CONTOURS AND/OR SPOT ELEVATIONS ON THE PLAN. PROPOSED FINISH GRADE IS DEFINED AS THE DESIGN SURFACE ELEVATION OF WORK TO BE CONSTRUCTED. THE QUANTITIES HAVE NOT BEEN FACTORED TO INCLUDE ALLOWANCES FOR BULKING, CLEARING AND GRUBBING, SUBSIDENCE, SHRINKAGE, OVER EXCAVATION, AND RECOMPACTION, UNDERGROUND UTILITY AND SUBSTRUCTURE SPOILS AND CONSTRUCTION METHODS.

THE CONTRACTOR SHALL PERFORM AN INDEPENDENT EARTHWORK ESTIMATE FOR THE PURPOSE OF PREPARING BID PRICES FOR EARTHWORK. THE BID PRICE SHALL INCLUDE COSTS FOR ANY NECESSARY IMPORT AND PLACEMENT OF EARTH MATERIALS OR THE EXPORT AND PROPER DISPOSAL OF EXCESS OR UNSUITABLE EARTH MATERIALS.

SHEET INDEX

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R5 - CREEK RESTORATION EXISTING SITE PLAN (2 OF 2)
R6 - CREEK RESTORATION SITE PLAN, SECTION, AND PROFILE (2 OF 2)
R7 - CREEK RESTORATION SECTIONS
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R9 - FORD CROSSING IMPROVEMENT SITE PLAN
R10 - RESERVOIR SPILLWAY CHANNEL EXISTING SITE PLAN
R11 - RESERVOIR SPILLWAY CHANNEL BANK EROSION PROTECTION SITE PLAN
R12 - RESERVOIR SPILLWAY CHANNEL CROSS SECTIONS

PROJECT DESCRIPTION

THE PROPOSED PRELIMINARY DESIGN PLANS WILL RESTORE THE HARPER CANYON STREAM CHANNEL TO AT OR NEAR PRE-VIOLATION CONDITIONS, ENHANCE THE FLOODPLAIN FOR RESTORATION OF SYCAMORE ALLUVIAL WOODLAND HABITAT, AND REDUCE FINE-SEDIMENT DELIVERY TO THE CREEK DUE TO BANK EROSION AND CHANNEL INCISION. THE PROJECT IS COMPOSED OF THREE DESIGN ELEMENTS:

CREEK AND FLOODPLAIN RESTORATION - AT THE GRADING VIOLATION SITE IN THE VICINITY OF THE SHOP BUILDINGS AND BRIDGE, RESTORE HARPER CANYON STREAM CHANNEL TO AN ALIGNMENT AND CHANNEL GEOMETRY SIMILAR TO ITS PRE-VIOLATION CONDITION, FLOODPLAIN ENHANCEMENT FOR RESTORATION OF SYCAMORE ALLUVIAL WOODLAND HABITAT, AND INSTALLATION OF A NEW CLEAR-CHANNEL-SPANNING REPLACEMENT BRIDGE. INSTALLATION OF ROCK-SLOPE PROTECTION ALONG LEFT BANK DOWNSTREAM OF BRIDGE WILL PROTECT THE EXISTING ROAD AND FACILITIES AND REDUCE FINE SEDIMENT DELIVERY DUE TO BANK EROSION.

FORD CROSSING IMPROVEMENT - AT THE EXISTING LOW-WATER "FORD" CROSSING, REMOVE THE CHANNEL-SPANNING CONCRETE BARRIER BLOCK GRADE CONTROL STRUCTURE AND RESTORE NATURAL CHANNEL BED AND BANK GEOMETRY AND PROVIDE FOR STABLE WET CROSSING AT NATURAL CHANNEL BED ELEVATION AND STABLE DRIVEWAY RAMPS BOTH SIDES.

RESERVOIR SPILLWAY CHANNEL BED AND BANK EROSION PROTECTION - DOWNSTREAM FROM THE BEDROCK RESERVOIR SPILLWAY, REMOVE THE CHANNEL-SPANNING CONCRETE BARRIER BLOCK GRADE CONTROL AND WEIR STRUCTURE AND REPLACE IT WITH AN ENGINEERED BOULDER WEIR. LAY BACK OVERSTEEPENED ERODIBLE SOIL SLOPES WITHIN THE FLOODPRONE AREA AND ELSEWHERE AND ARMOR ERODIBLE BANKS BELOW THE 100-YEAR WATER SURFACE ELEVATION WITH ROCK SLOPE PROTECTION.

SECTION AND DETAIL CONVENTION

SECTION OR DETAIL IDENTIFICATION (NUMBER OR LETTER)

A
C3

REFERENCE SHEET ON WHICH SECTION OR DETAIL IS SHOWN.

DRAFT - NOT FOR CONSTRUCTION

Revisions:

Harper Canyon
Pacheco Pass Highway
Santa Clara County, CA
A.P.N.s 898-19-005 & 043
Owner: Wyatt & Lacy Bourdet

COVER SHEET

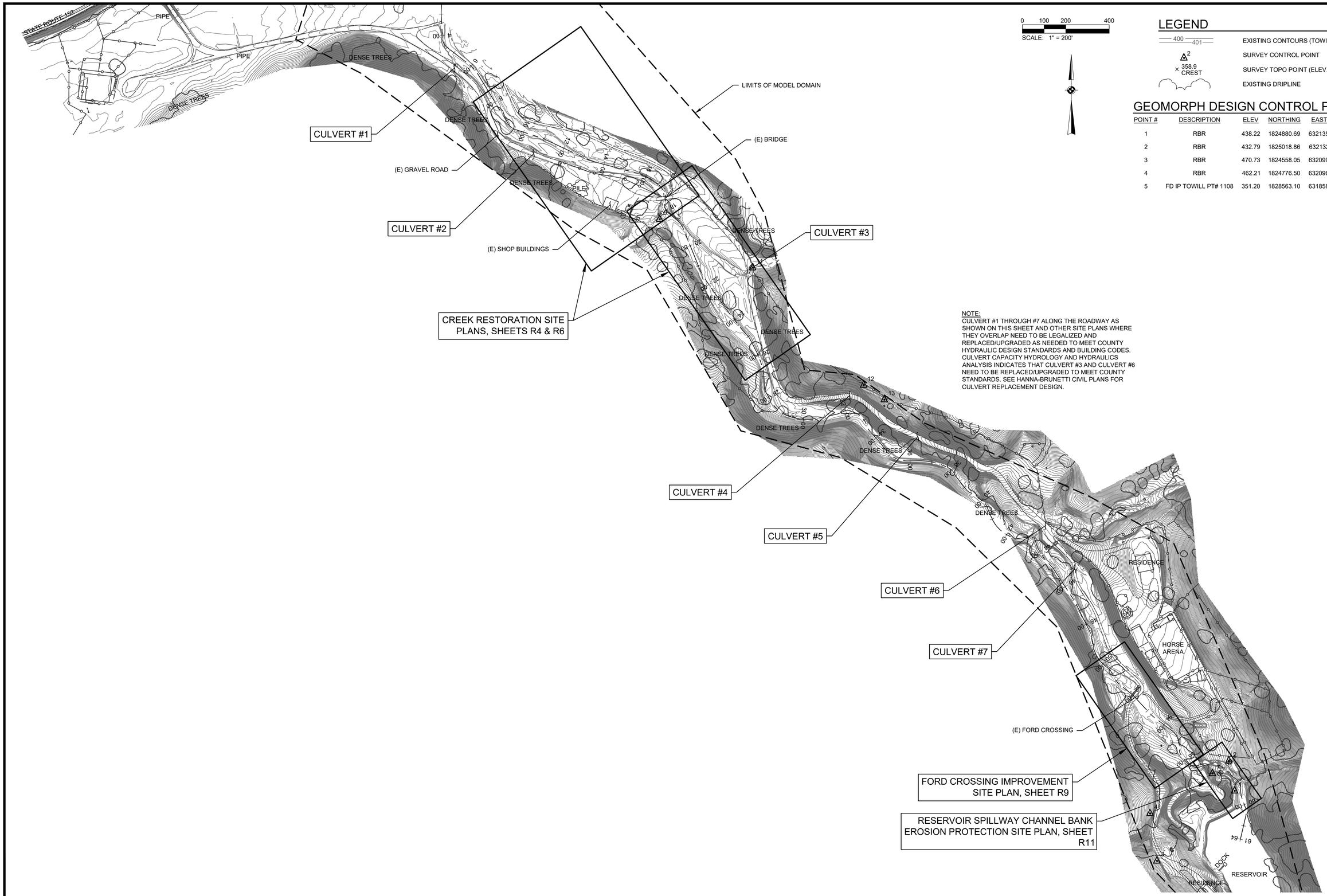
HARPER CANYON
BOURDET RANCH GRADING VIOLATION ABATEMENT PROJECT

Geomorph DESIGN
2100 Fourth Street, No. 154
San Rafael, CA 94901
(510) 219-1064
www.geomorphdesign.com

geomorphDESIGN

Date: 18 AUG 2022
Design by: MS & SW
Drawn by: BRS
Checked by: MS & SW
Scale: AS SHOWN
30% DESIGN PLANS

R1



0 100 200 400
SCALE: 1" = 200'

LEGEND

400 / 401	EXISTING CONTOURS (TOWILL, JAN 2020)
2	SURVEY CONTROL POINT
× 358.9 CREST	SURVEY TOPO POINT (ELEV., DESCR)
	EXISTING DRIPLINE

GEOMORPH DESIGN CONTROL POINTS

POINT #	DESCRIPTION	ELEV	NORTHING	EASTING
1	RBR	438.22	1824880.69	6321351.50
2	RBR	432.79	1825018.86	6321325.01
3	RBR	470.73	1824558.05	6320993.77
4	RBR	462.21	1824776.50	6320962.06
5	FD IP TOWILL PT# 1108	351.20	1828563.10	6318584.98

NOTE:
CULVERT #1 THROUGH #7 ALONG THE ROADWAY AS SHOWN ON THIS SHEET AND OTHER SITE PLANS WHERE THEY OVERLAP NEED TO BE LEGALIZED AND REPLACED/UPGRADED AS NEEDED TO MEET COUNTY HYDRAULIC DESIGN STANDARDS AND BUILDING CODES. CULVERT CAPACITY HYDROLOGY AND HYDRAULICS ANALYSIS INDICATES THAT CULVERT #3 AND CULVERT #6 NEED TO BE REPLACED/UPGRADED TO MEET COUNTY STANDARDS. SEE HANNA-BRUNETTI CIVIL PLANS FOR CULVERT REPLACEMENT DESIGN.

OVERVIEW MAP
SCALE: 1" = 200'

Revisions:

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OVERVIEW MAP

HARPER CANYON

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Scale: 1" = 200'
30% DESIGN PLANS

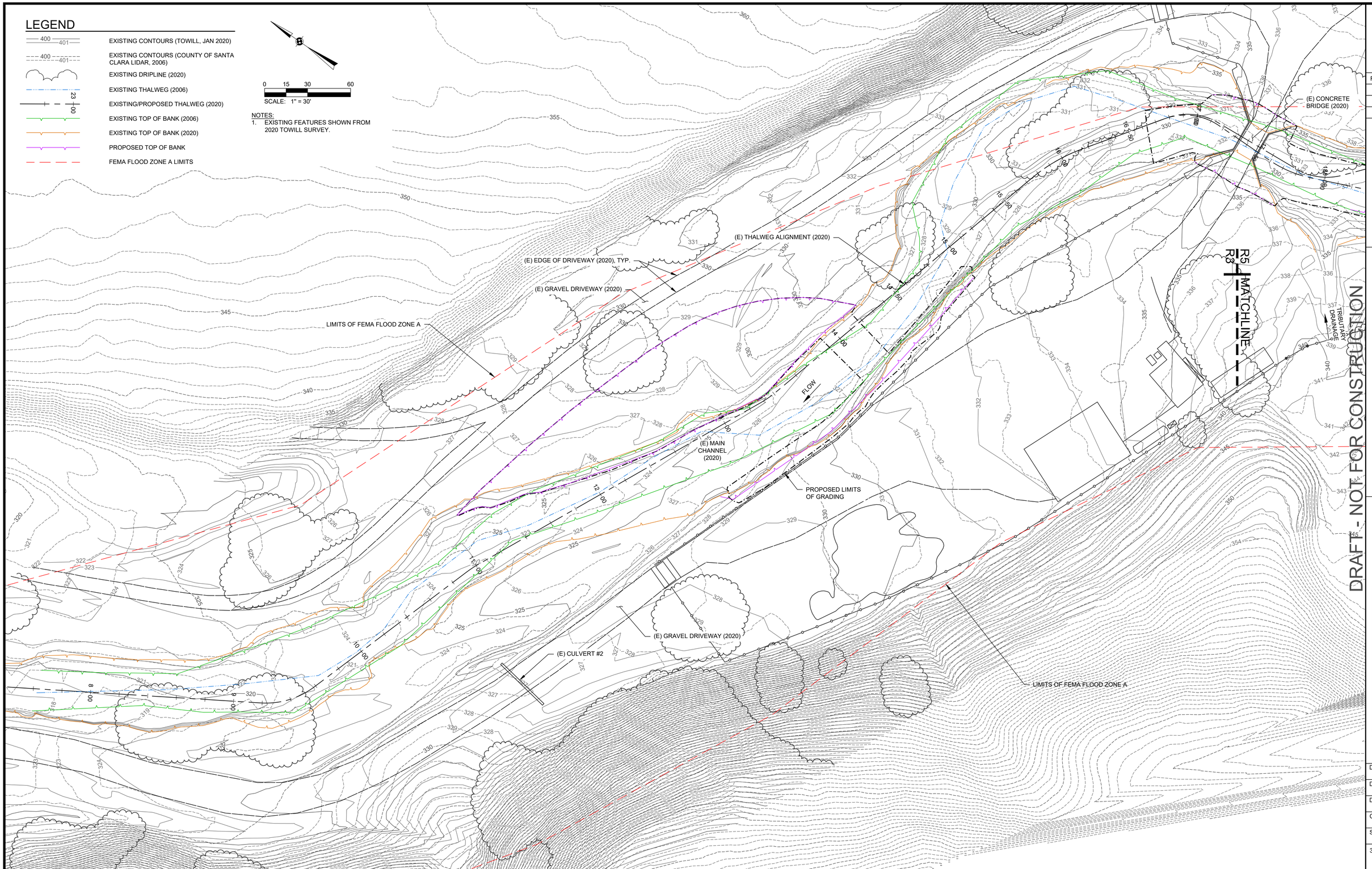
R2

LEGEND

- EXISTING CONTOURS (TOWILL, JAN 2020)
- EXISTING CONTOURS (COUNTY OF SANTA CLARA LIDAR, 2006)
- EXISTING DRIPLINE (2020)
- EXISTING THALWEG (2006)
- EXISTING/PROPOSED THALWEG (2020)
- EXISTING TOP OF BANK (2006)
- EXISTING TOP OF BANK (2020)
- PROPOSED TOP OF BANK
- FEMA FLOOD ZONE A LIMITS

0 15 30 60
SCALE: 1" = 30'

NOTES:
1. EXISTING FEATURES SHOWN FROM 2020 TOWILL SURVEY.



CREEK RESTORATION SITE PLAN - 2006 VS 2020 CONTOURS
SCALE: 1" = 30'

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Revisions:

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CREEK RESTORATION EXISTING SITE PLAN (1 OF 2)

HARPER CANYON

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30% DESIGN PLANS

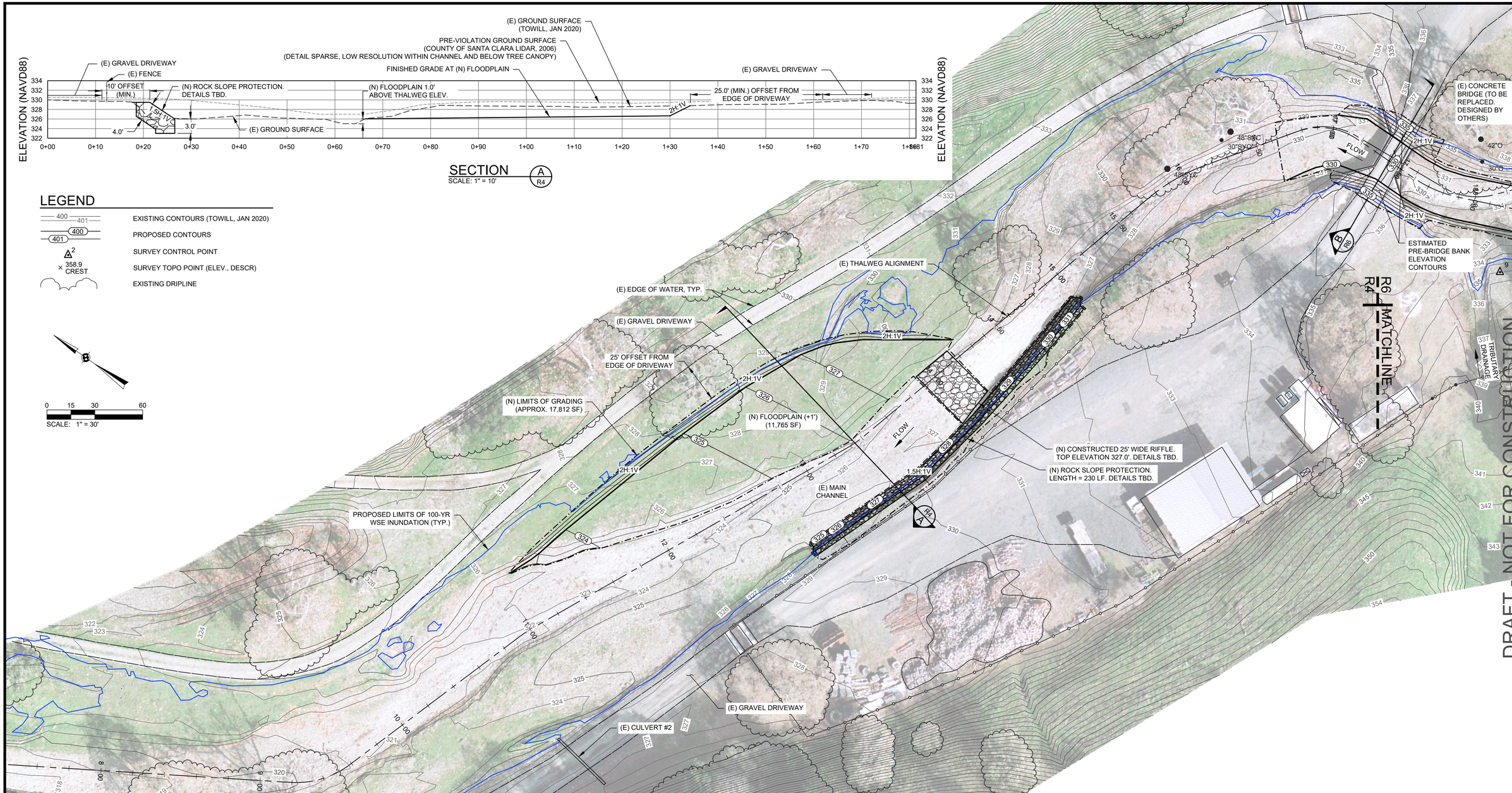
R3

SECTION A R4
SCALE: 1" = 10'

LEGEND

- EXISTING CONTOURS (TOWILL, JAN 2020)
- PROPOSED CONTOURS
- SURVEY CONTROL POINT
- SURVEY TOPO POINT (ELEV., DESCR)
- EXISTING DRIPLINE

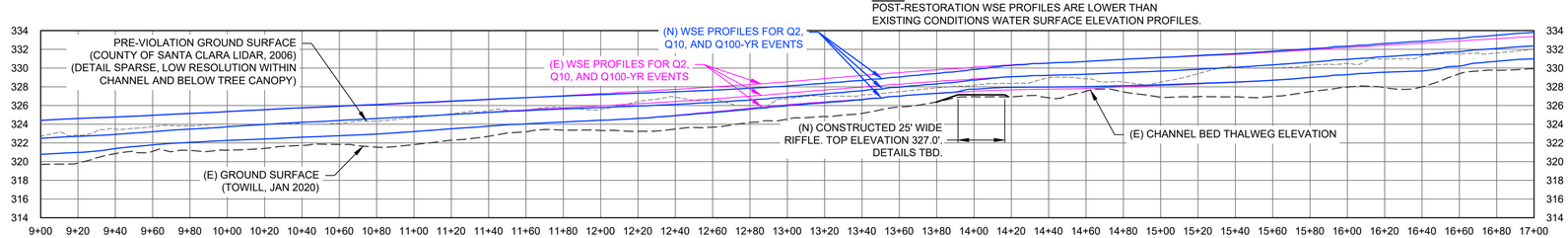
SCALE: 1" = 30'



CREEK RESTORATION SITE PLAN

SCALE: 1" = 30'

NOTE:
POST-RESTORATION WSE PROFILES ARE LOWER THAN EXISTING CONDITIONS WATER SURFACE ELEVATION PROFILES.



MAIN CHANNEL THALWEG PROFILE

SCALE: H: 1" = 40'; V: 1" = 8'

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CREEK RESTORATION SITE PLAN, SECTION, AND PROFILE (1 OF 2)

HARPER CANYON

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Checked by: MS & SW
Scale: 1" = 30'
30% DESIGN PLANS

R4

CREEK RESTORATION SITE PLAN - 2006 VS 2020 CONTOURS

SCALE: 1" = 30'

LEGEND

- EXISTING CONTOURS (TOWILL, JAN 2020)
- EXISTING CONTOURS (COUNTY OF SANTA CLARA LIDAR, 2006)
- EXISTING DRIPLINE (2020)
- EXISTING THALWEG (2006)
- EXISTING/PROPOSED THALWEG (2020)
- EXISTING TOP OF BANK (2006)
- EXISTING TOP OF BANK (2020)
- PROPOSED TOP OF BANK
- FEMA FLOOD ZONE A LIMITS

0 15 30 60

SCALE: 1" = 30'

NOTES:

1. EXISTING FEATURES SHOWN FROM 2020 TOWILL SURVEY.

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CREEK RESTORATION EXISTING SITE PLAN (2 OF 2)

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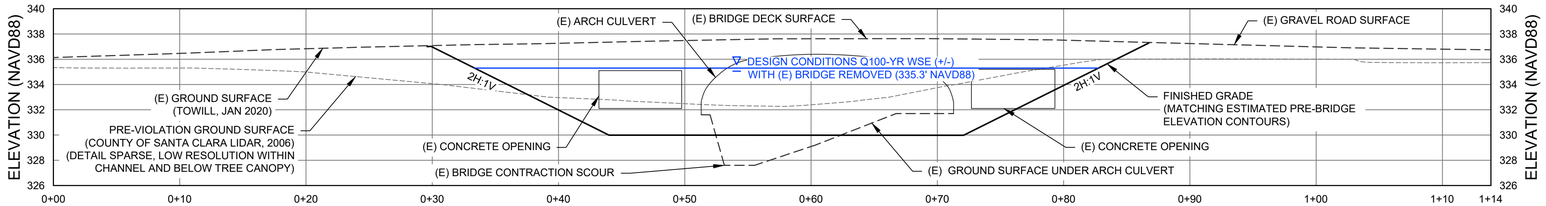
Checked by: MS & SW

Scale: 1" = 30'

30% DESIGN PLANS

R5



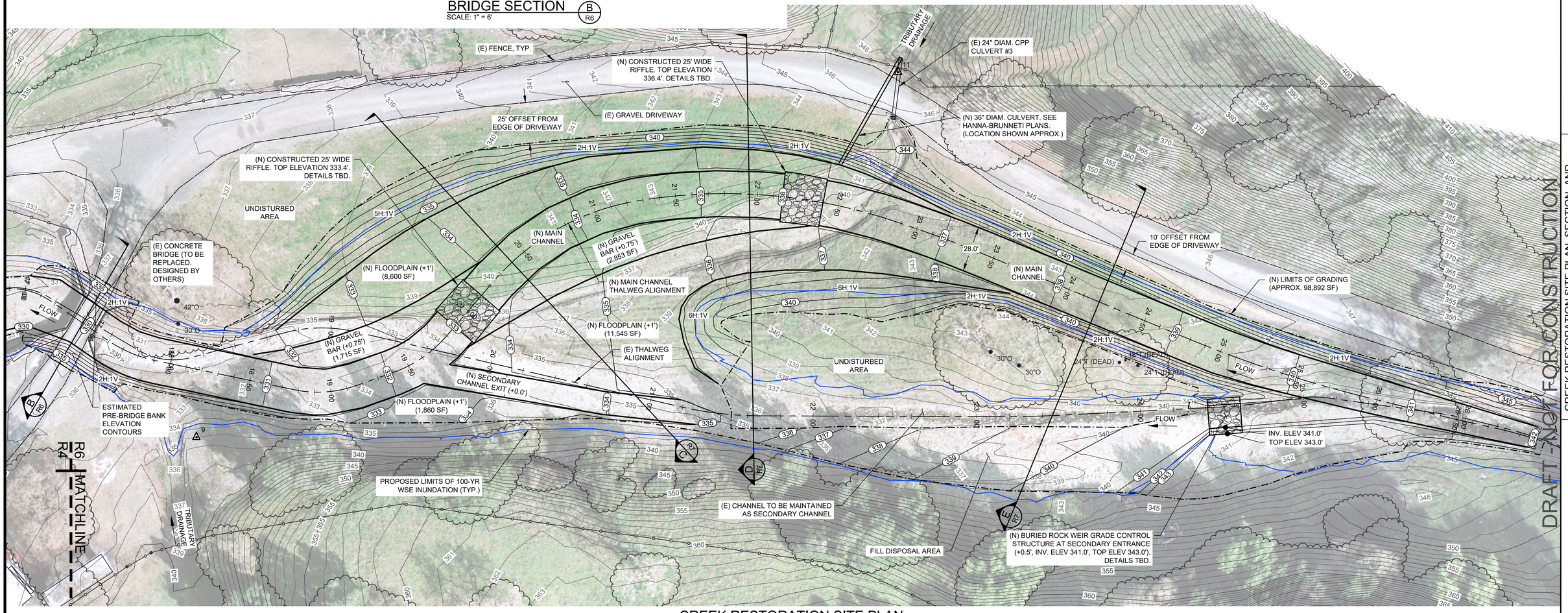
BRIDGE SECTION B/R6

SCALE: 1" = 6'

SCALE: 1" = 30'

LEGEND

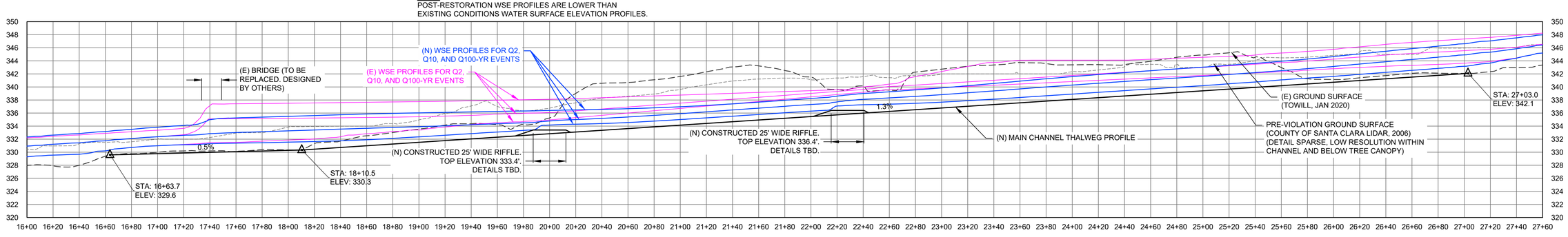
- EXISTING CONTOURS (TOWILL, JAN 2020)
- PROPOSED CONTOURS
- SURVEY CONTROL POINT
- SURVEY TOPO POINT (ELEV., DESCR)
- EXISTING DRIPLINE



CREEK RESTORATION SITE PLAN

SCALE: 1" = 30'

NOTE:
POST-RESTORATION WSE PROFILES ARE LOWER THAN
EXISTING CONDITIONS WATER SURFACE ELEVATION PROFILES.



MAIN CHANNEL THALWEG PROFILE

SCALE: H: 1" = 40'; V: 1" = 8'

Revisions:

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CREEK RESTORATION SITE PLAN, SECTION, AND PROFILE (2 OF 2)

HARPER CANYON

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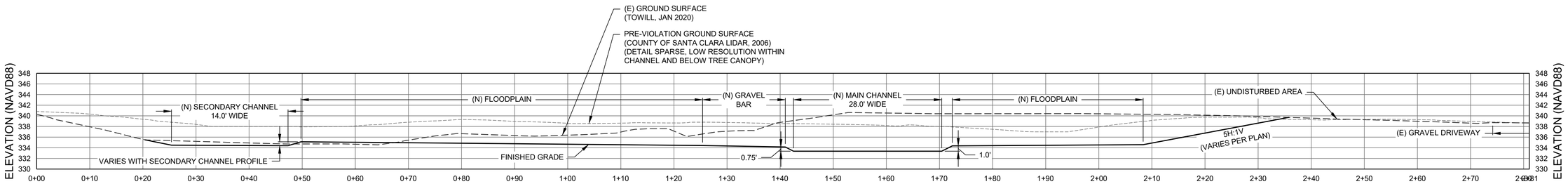
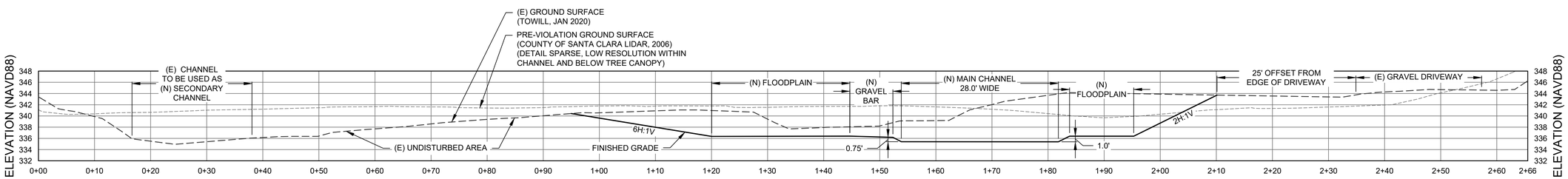
30% DESIGN PLANS

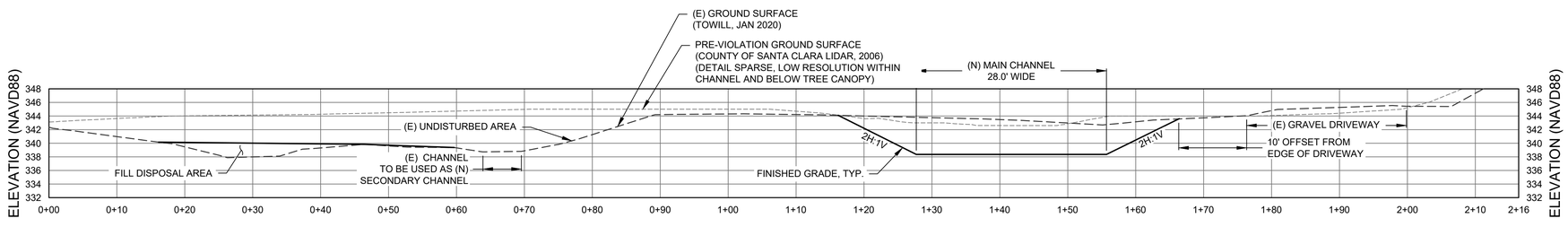
R6



SECTION C R7
SCALE: 1" = 10'



SECTION D R7
SCALE: 1" = 10'



SECTION E R7
SCALE: 1" = 10'

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CREEK RESTORATION SECTIONS

HARPER CANYON

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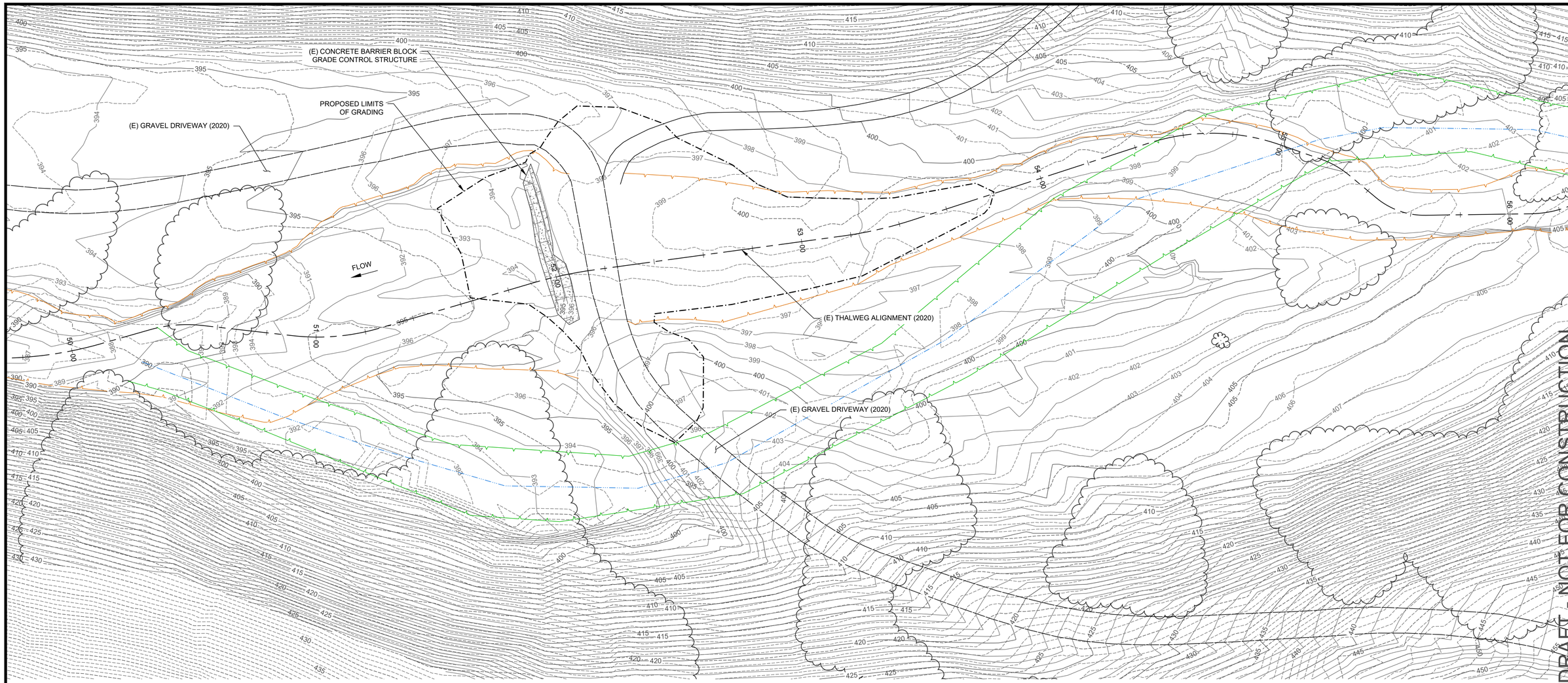
Scale:
1" = 10'

30% DESIGN PLANS

R7



FORD CROSSING SITE PLAN - 2006 VS 2020 CONTOURS

SCALE: 1" = 20'

LEGEND

- EXISTING CONTOURS (TOWILL, JAN 2020)
- EXISTING CONTOURS (COUNTY OF SANTA CLARA LIDAR, 2006)
- EXISTING DRIPLINE (2020)
- EXISTING THALWEG (2006)
- EXISTING/PROPOSED THALWEG (2020)
- EXISTING TOP OF BANK (2006)
- EXISTING TOP OF BANK (2020)
- PROPOSED TOP OF BANK

0 10 20 40

SCALE: 1" = 20'

NOTES:

1. EXISTING FEATURES SHOWN FROM 2020 TOWILL SURVEY.

Revisions:

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FORD CROSSINGSITE EXISTING SITE PLAN

HARPER CANYON

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Drawn by: BRS

Checked by: MS & SW

Scale: 1" = 20'

30% DESIGN PLANS

R8

REMOVE (E) CONCRETE BARRIER BLOCK GRADE CONTROL STRUCTURE (APPROX. 447 SF) (APPROX. 10 LF)

LIMITS OF GRADING (APPROX. 12,607 SF) (APPROX. 215 LF)

DESIGN AND FIELD-FIT CHANNEL BED AND BANK GRADING TO AVOID AND MINIMIZE IMPACTS TO (E) RIPARIAN VEGETATION INSIDE AND BORDERING GRADING LIMITS AREA

(N) 10% MAX. SLOPED RAMP ROCK-REINFORCED BELOW ELEVATION 396' (663 SF)

LIMITS OF (N) NATURAL ROCK-REINFORCED CHANNEL BED SURFACE AND RAMPS (4-FT THICKNESS ENGINEERED STREAMBED MATERIAL, ELEV. 394'±, 2,030 SF, 12 LF)

FLOW

BED ELEVATION PROFILE, THIS SHEET

(N) NATURAL ROCK-REINFORCED CHANNEL LOW-WATER WET CROSSING (817 SF)

REMOVE (E) LOW-WATER "FORD" CROSSING TO RESTORE NATURAL CREEK BED AND BANK ELEVATION CONTOURS

(N) 10% MAX. SLOPED RAMP ROCK-REINFORCED BELOW ELEVATION 397' (550 SF)

(E) GRAVEL DRIVEWAY

PROPOSED LIMITS OF 100-YR WSE INUNDATION (TYP.)

R9 F

DRAFT - NOT FOR CONSTRUCTION

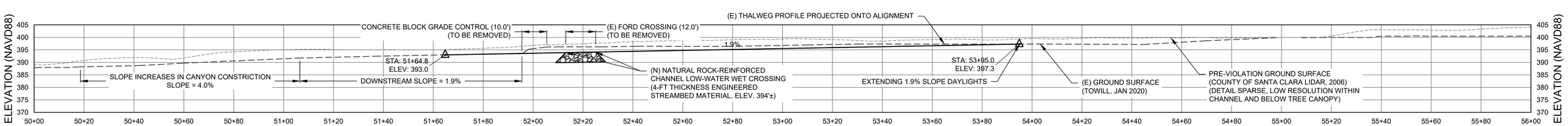
LEGEND

- EXISTING CONTOURS (TOWILL, JAN 2020)
- PROPOSED CONTOURS
- SURVEY CONTROL POINT
- SURVEY TOPO POINT (ELEV., DESCR)
- EXISTING DRIPLINE

0 10 20 40
SCALE: 1" = 20'

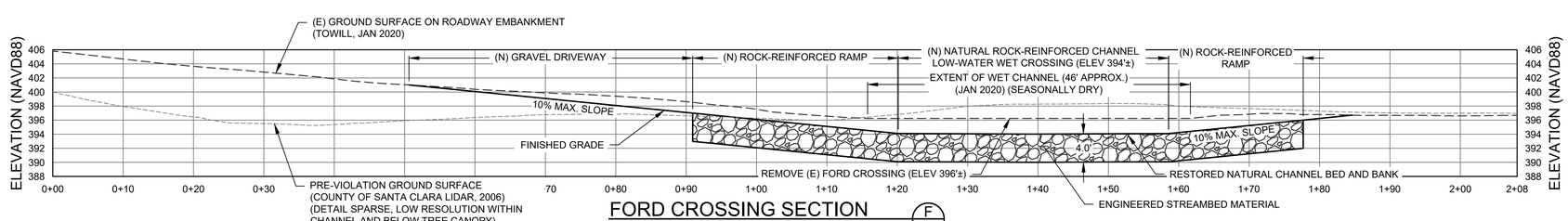
FORD CROSSING IMPROVEMENT SITE PLAN

SCALE: 1" = 20'



BED ELEVATION PROFILE

SCALE: 1" = 20'



FORD CROSSING SECTION

F
R9

SCALE: 1" = 10'

Revisions:

Harper Canyon
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Santa Clara County, CA
A.P.N.s 898-19-005 & 043
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FORD CROSSING IMPROVEMENT SITE PLAN

HARPER CANYON

BOURDET RANCH GRADING VIOLATION ABATEMENT PROJECT

Geomorph DESIGN
2100 Fourth Street, No. 154
San Rafael, CA 94901
(510) 219-1064
www.geomorphdesign.com

geomorphDESIGN

Date: 18 AUG 2022

Design by: MS & SW

Drawn by: BRS

Checked by: MS & SW

Scale: 1" = 20', 1" = 10'

30% DESIGN PLANS

R9

(E) FENCE

(E) EXPOSED BEDROCK CHANNEL (2020)

(E) BOULDERS (2020)

(E) POOL (2020)

(E) POOL (2020)

TRIBUTARY DRAINAGE

(E) CONCRETE BARRIER BLOCK WEIR STRUCTURE (2020)

(E) THALWEG ALIGNMENT (2020)

FLOW

PROPOSED LIMITS OF GRADING

432.8 CREST SPILLWAY

441.0 CREST DAM

DRAFT - NOT FOR CONSTRUCTION

RESERVOIR SPILLWAY CHANNEL SITE PLAN - 2006 VS 2020 CONTOURS

SCALE: 1" = 10'

0 5 10 20

SCALE: 1" = 10'

LEGEND

- EXISTING CONTOURS (TOWILL, JAN 2020)
- EXISTING CONTOURS (COUNTY OF SANTA CLARA LIDAR, 2006)
- EXISTING DRIPLINE (2020)
- EXISTING THALWEG (2006)
- EXISTING/PROPOSED THALWEG (2020)
- EXISTING TOP OF BANK (2006)
- EXISTING TOP OF BANK (2020)
- PROPOSED TOP OF BANK

NOTES:

1. EXISTING FEATURES SHOWN FROM 2020 TOWILL SURVEY.
2. EXISTING TOP OF BANK FROM 2006 LOCATED OUTSIDE OF SHEET VIEW, WEST OF CURRENT LOCATION.

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RESERVOIR SPILLWAY CHANNEL EXISTING SITE PLAN

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R10

GRADE OVER-STEEPENED SLOPE BACK AT 2H:1V

LIMITS OF GRADING (APPROX. 2,763 SF)

(E) FENCE

(E) EXPOSED BEDROCK CHANNEL

RELOCATE (E) BOULDERS AS NEEDED

(E) POOL

412.2 WSE 4-15-2021

405.7 WSE/4-15-2021

TRIBUTARY DRAINAGE

(E) CONCRETE BARRIER BLOCK WEIR STRUCTURE

(N) WEIR INVERT TO MATCH (E) WEIR INVERT ELEV. 430.6'

REMOVE (E) CONCRETE BARRIER BLOCK WEIR STRUCTURE. CONSTRUCT (N) ENGINEERED BOULDER WEIR. SEE BOULDER WEIR DETAILS, SECTION J.

RESERVOIR SPILLWAY CHANNEL PROFILE, THIS SHEET

BOULDER RIP-RAP SLOPE PROTECTION. FG SLOPE 1.5H:1V MAX., TYP.

FLOW

LIMITS OF GRADING (APPROX. 4,495 SF)

PROPOSED LIMITS OF 100-YR WSE INUNDATION (TYP.)

432.8 CREST SPILLWAY

432.9 WSE

441.0 CREST DAM

40"O

36"O

24"O

24"W

DRAFT - NOT FOR CONSTRUCTION

RESERVOIR SPILLWAY CHANNEL BANK EROSION PROTECTION SITE PLAN

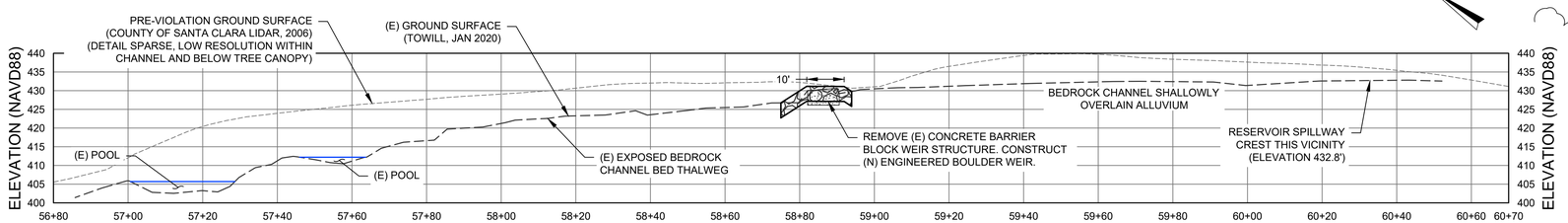
SCALE: 1" = 10'

0 5 10 20

SCALE: 1" = 10'

LEGEND

400 / 401	EXISTING CONTOURS (TOWILL, JAN 2020)
400 / 401	PROPOSED CONTOURS
2	SURVEY CONTROL POINT
× 358.9 CREST	SURVEY TOPO POINT (ELEV., DESCR)
	EXISTING DRIPLINE



RESERVOIR SPILLWAY CHANNEL PROFILE

SCALE: 1" = 20'

NOTE:
ALL GRADED AND EROSION CONTROL FABRIC COVERED SOIL AREAS TO BE SEEDED WITH SPECIFIC AGENCY-APPROVED SEED MIXTURE. SEE EROSION CONTROL PLAN (SHEET 20) IN HANNA-BRUNETTI CIVIL PLANS.

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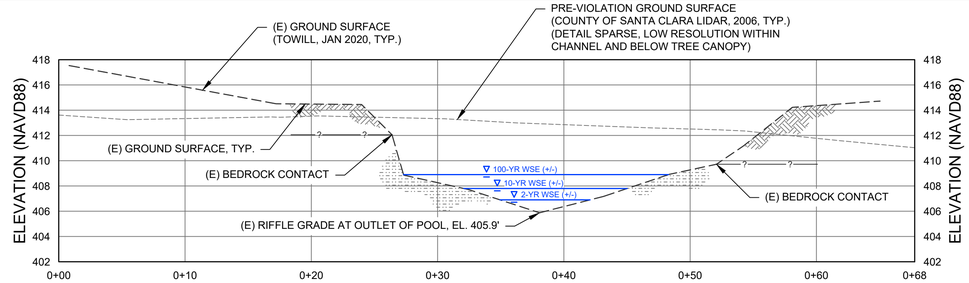
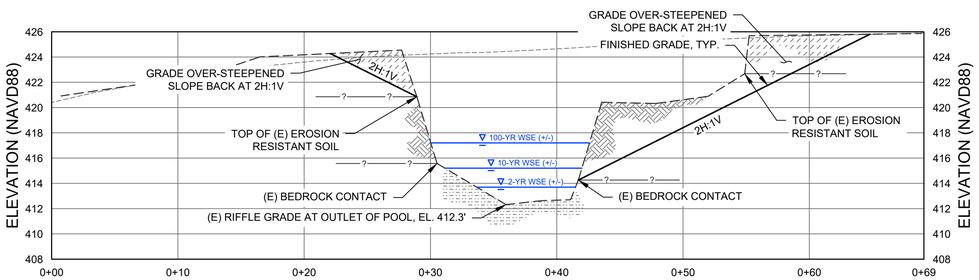
30% DESIGN PLANS

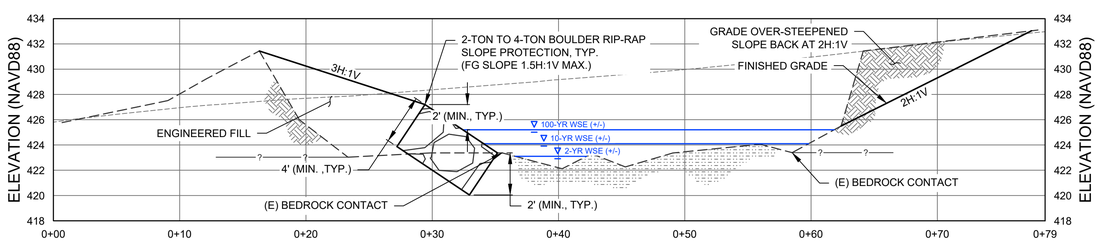
R11



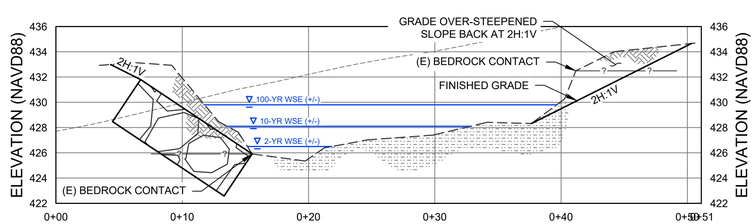
SPILLWAY CHANNEL SECTION (G / R12)
SCALE: 1" = 6'



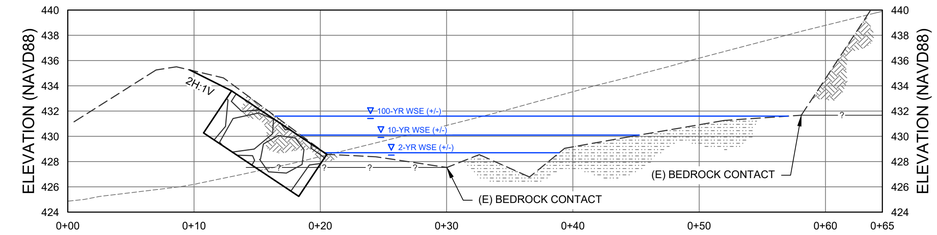
SPILLWAY CHANNEL SECTION (H / R12)
SCALE: 1" = 6'



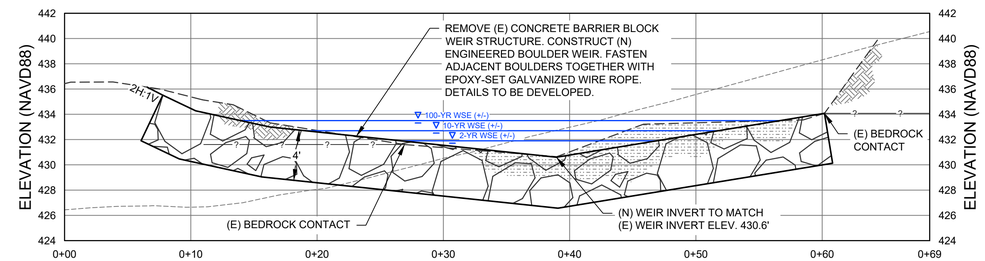
SPILLWAY CHANNEL SECTION (I / R12)
SCALE: 1" = 6'



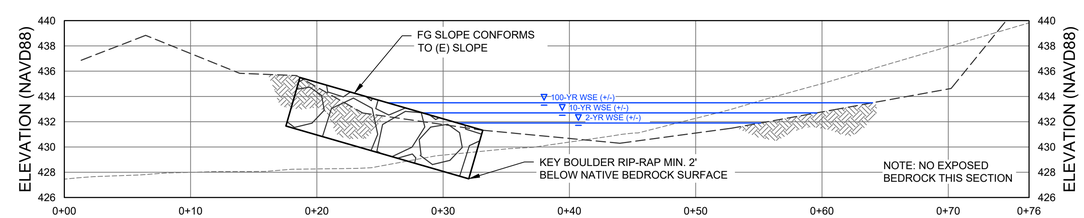
SPILLWAY CHANNEL SECTION (J / R12)
SCALE: 1" = 6'



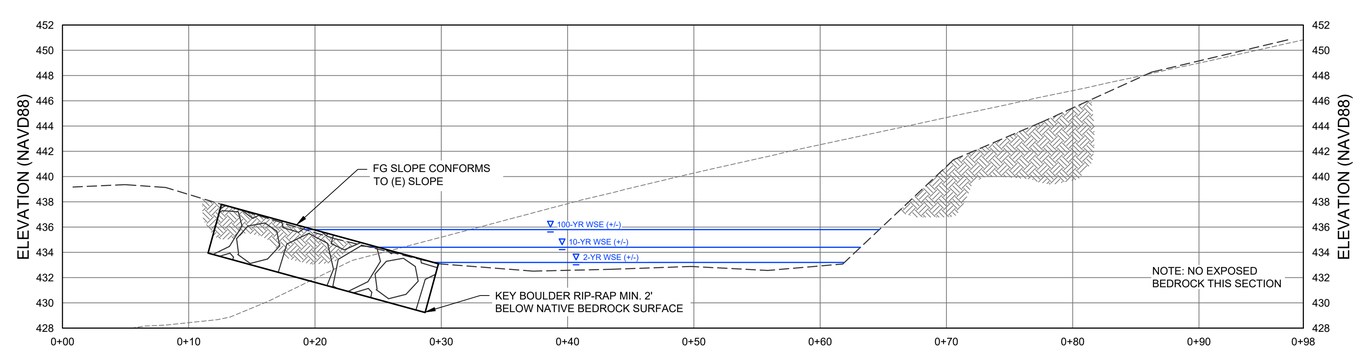
SPILLWAY CHANNEL SECTION (K / R12)
SCALE: 1" = 6'



SPILLWAY CHANNEL SECTION (L / R12)
SCALE: 1" = 6'



SPILLWAY CHANNEL SECTION (M / R12)
SCALE: 1" = 6'



SPILLWAY CHANNEL SECTION (N / R12)
SCALE: 1" = 6'

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RESERVOIR SPILLWAY CHANNEL CROSS SECTIONS

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R12