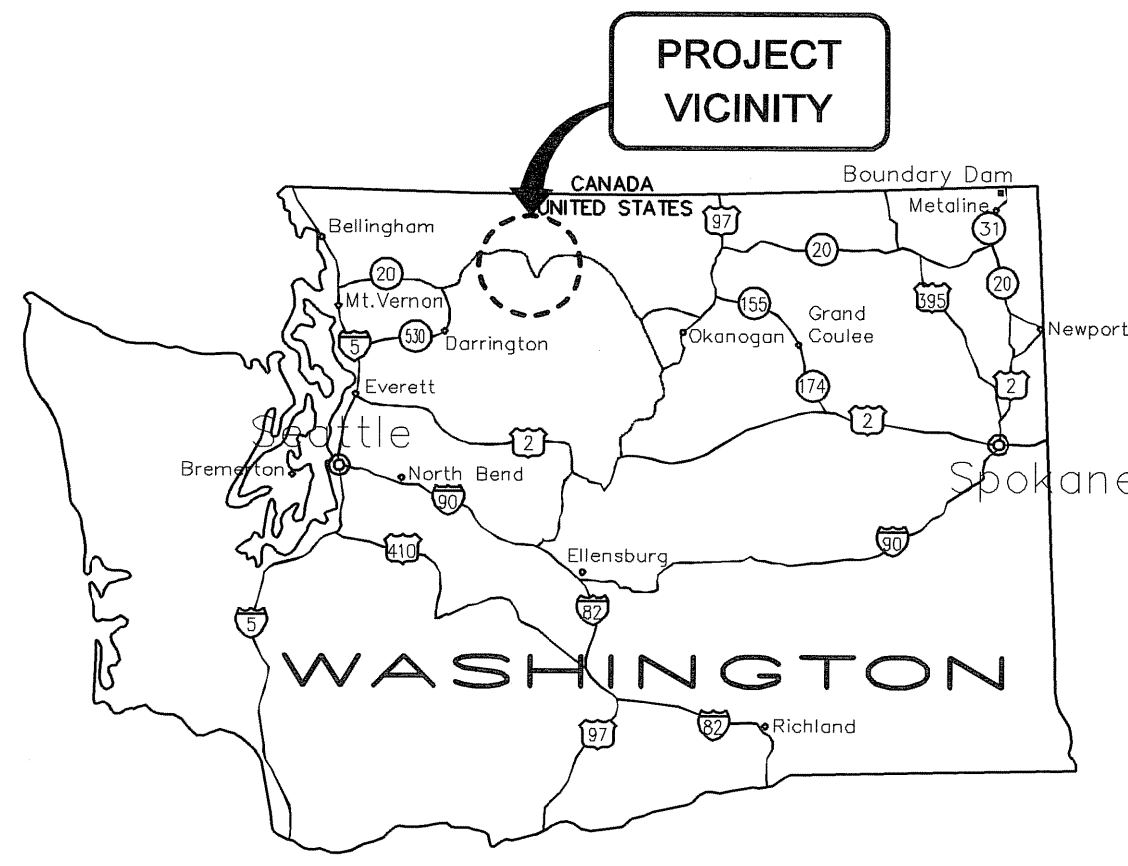


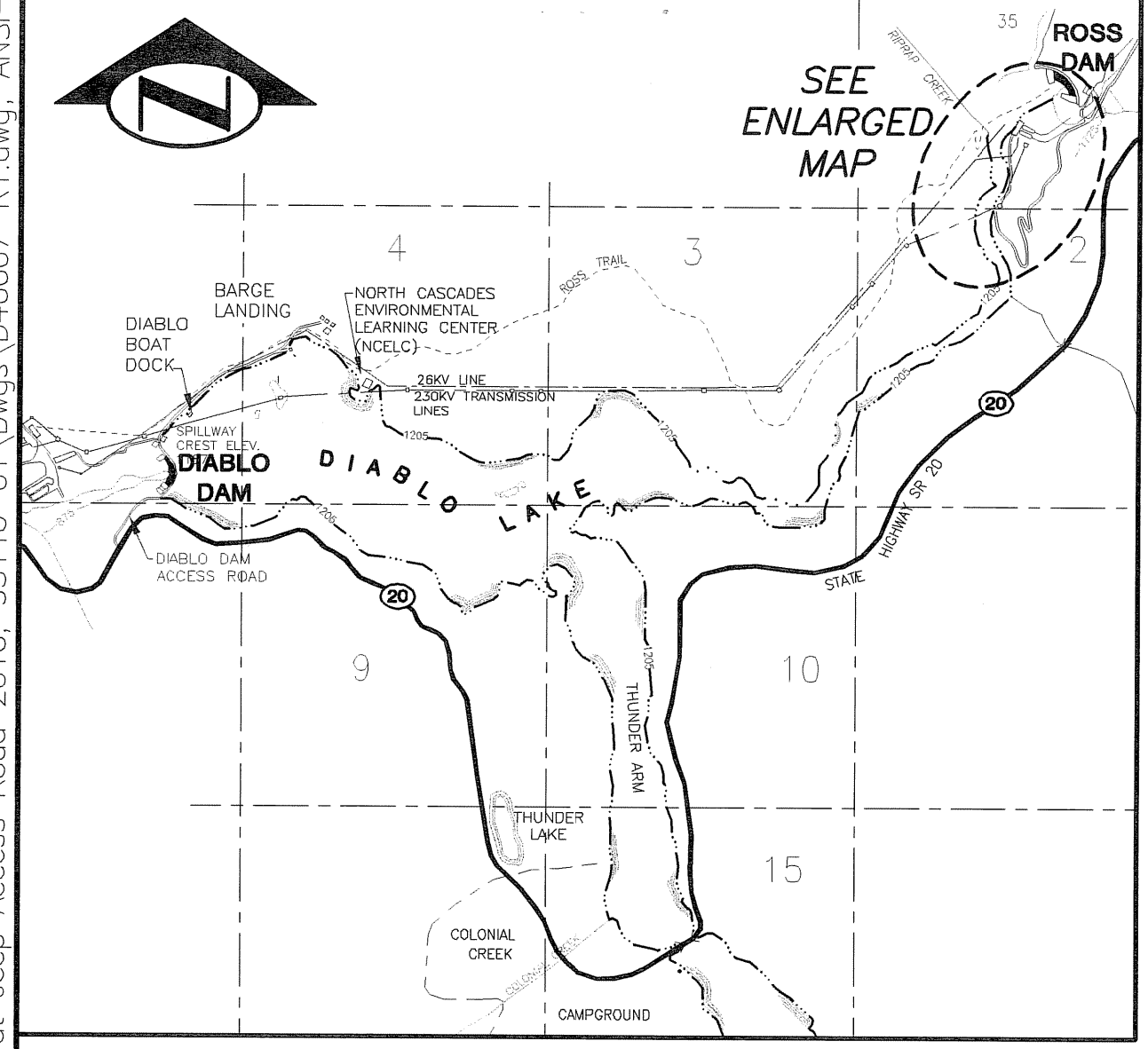


ROSS POWERHOUSE ROCK SLIDE STABILIZATION

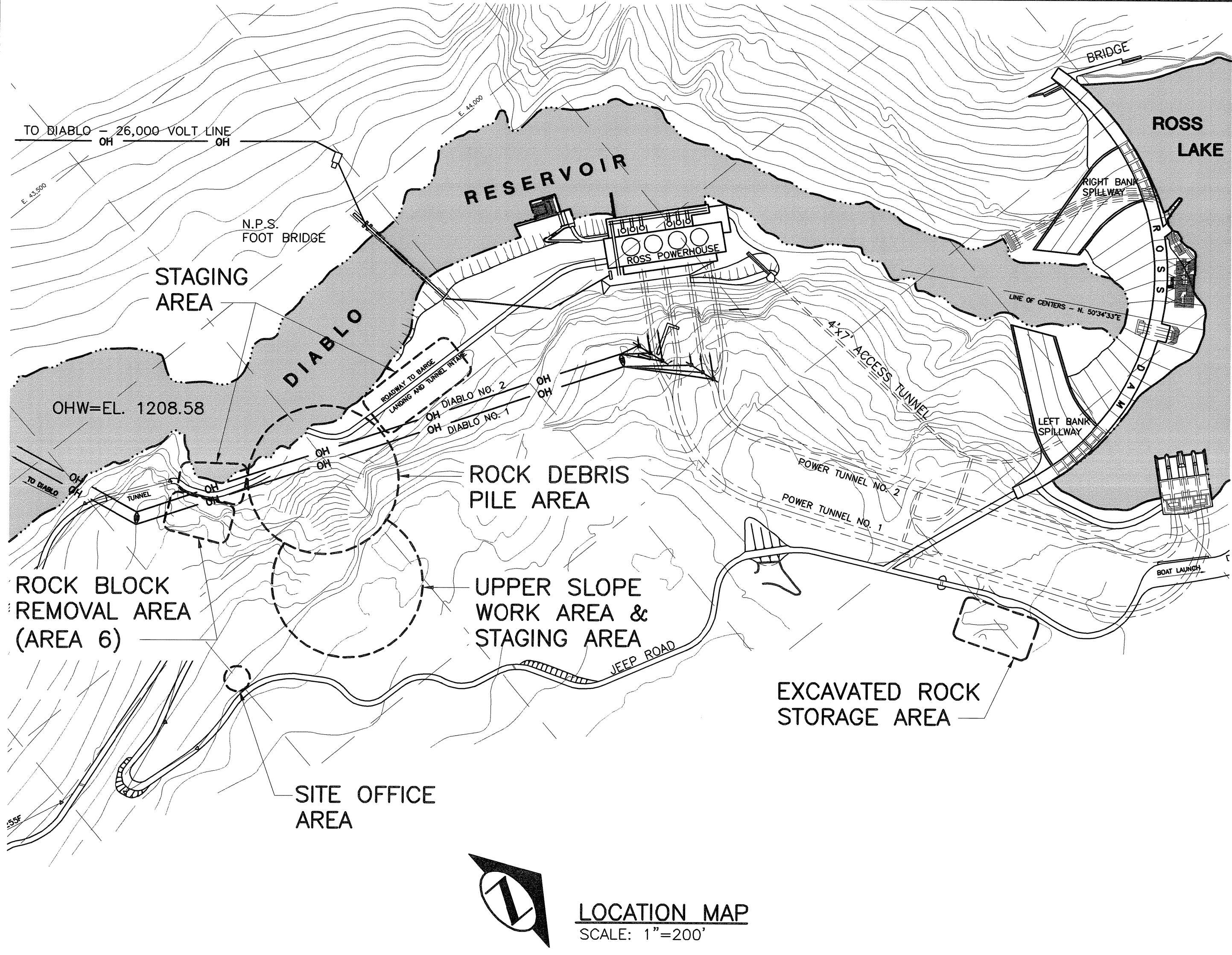
CONTRACT DRAWINGS ISSUED WITH SPECIFICATION NO. 3548



STATE MAP
SCALE: N.T.S.



VICINITY MAP
SCALE: N.T.S.



LOCATION MAP
SCALE: 1"=200'

PROJECT LOCATION:

LATITUDE: 48° 43' 38"
LONGITUDE: 121° 04' 20"
S 1/2 OF SEC 35,
T 38 N, R 13 E, W.M.
WHATCOM COUNTY, WASHINGTON

REFERENCE DRAWINGS:

- D-44660 TEMPORARY BARGE LANDING, PRE-CONSTRUCTION SURVEY FOR QUANTITIES
- D-36951-2 ROSS ROCK SLIDE POWERHOUSE TO JEEP ROAD TUNNEL PRE-CONSTRUCTION SURVEY
- D-46680 ROSS POWERHOUSE ROCK SLIDE TOPOGRAPHIC SURVEY, UPPER SLIDE SLOPES & ACCESS ROAD
- D-46681 ROSS POWERHOUSE ROCK SLIDE TOPOGRAPHIC SURVEY, SLIDE SCARP & DEBRIS PILE
- D-46682 ROSS POWERHOUSE ROCK SLIDE TOPOGRAPHIC SURVEY, E & W SHORE AT ROCK SLIDE
- D-46683 ROSS POWERHOUSE ROCK SLIDE TOPOGRAPHIC SURVEY, EXISTING GROUND PROFILES
- A-5204, A-5205, A-5206 ROSS POWERHOUSE ROCK SLIDE BLASTING PERMIT DRAWINGS

SHEET INDEX

SHEET #	SHEET TITLE	DRAWING #
G-1	ROSS POWERHOUSE ROCK SLIDE STABILIZATION-STATE MAP, LOCATION MAP AND DRAWING INDEX	D-46667
C-1	ROSS POWERHOUSE ROCK SLIDE STABILIZATION-AREA LOCATION MAP	D-46668
C-2	ROSS POWERHOUSE ROCK SLIDE STABILIZATION-EXCAVATION PLAN	D-46669
C-3	ROSS POWERHOUSE ROCK SLIDE STABILIZATION-CROSS SECTIONS	D-46670
C-4	ROSS POWERHOUSE ROCK SLIDE STABILIZATION-CROSS SECTIONS	D-46671
C-5	ROSS POWERHOUSE ROCK SLIDE STABILIZATION-ACCESS ROAD CROSS SECTION AND PROFILE	D-46672
C-6	ROSS POWERHOUSE ROCK SLIDE STABILIZATION-ACCESS ROAD CROSS SECTIONS	D-46673
C-7	NOT USED	D-46674
C-8	NOT USED	D-46675

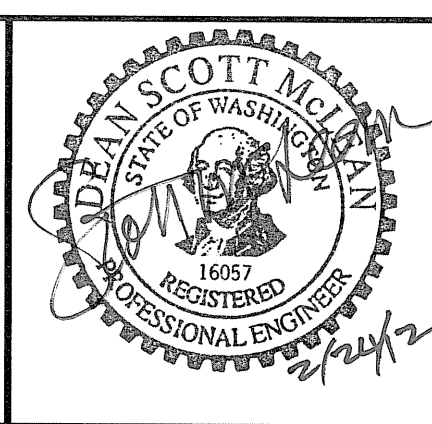
VERTICAL DATUM
NAVD 88

REVISIONS		IMAGE	
REV	DATE	BY	DATE
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1	2/24/2012	SON	2/24/2012

SPECIFICATION NUMBER: 3548
APPROVED FOR ADVERTISING
NANCY LOCKE
PURCHASING AND CONTRACTING SERVICES DIVISION
SEATTLE, WASHINGTON 20____
BY: _____
PURCHASING AND CONTRACTING SERVICES DIRECTOR

REVISIONS		IMAGE	
REV	DATE	BY	DATE
0	2/15/2012	SON	2/15/2012
1	2/24/2012	SON	2/24/2012

THIS DRAWING IS THE PROPERTY OF THE CITY OF SEATTLE AND ITS SEATTLE CITY LIGHT DEPARTMENT. IT IS PRODUCED SOLELY FOR THE USE BY SEATTLE CITY LIGHT AND OTHER CITY DEPARTMENTS. THE USE, REPRODUCTION, AND TRANSFER OF THIS DRAWING AND/OR ANY INFORMATION CONTAINED IN THE DRAWING REQUIRES THE WRITTEN PERMISSION OF SEATTLE CITY LIGHT.



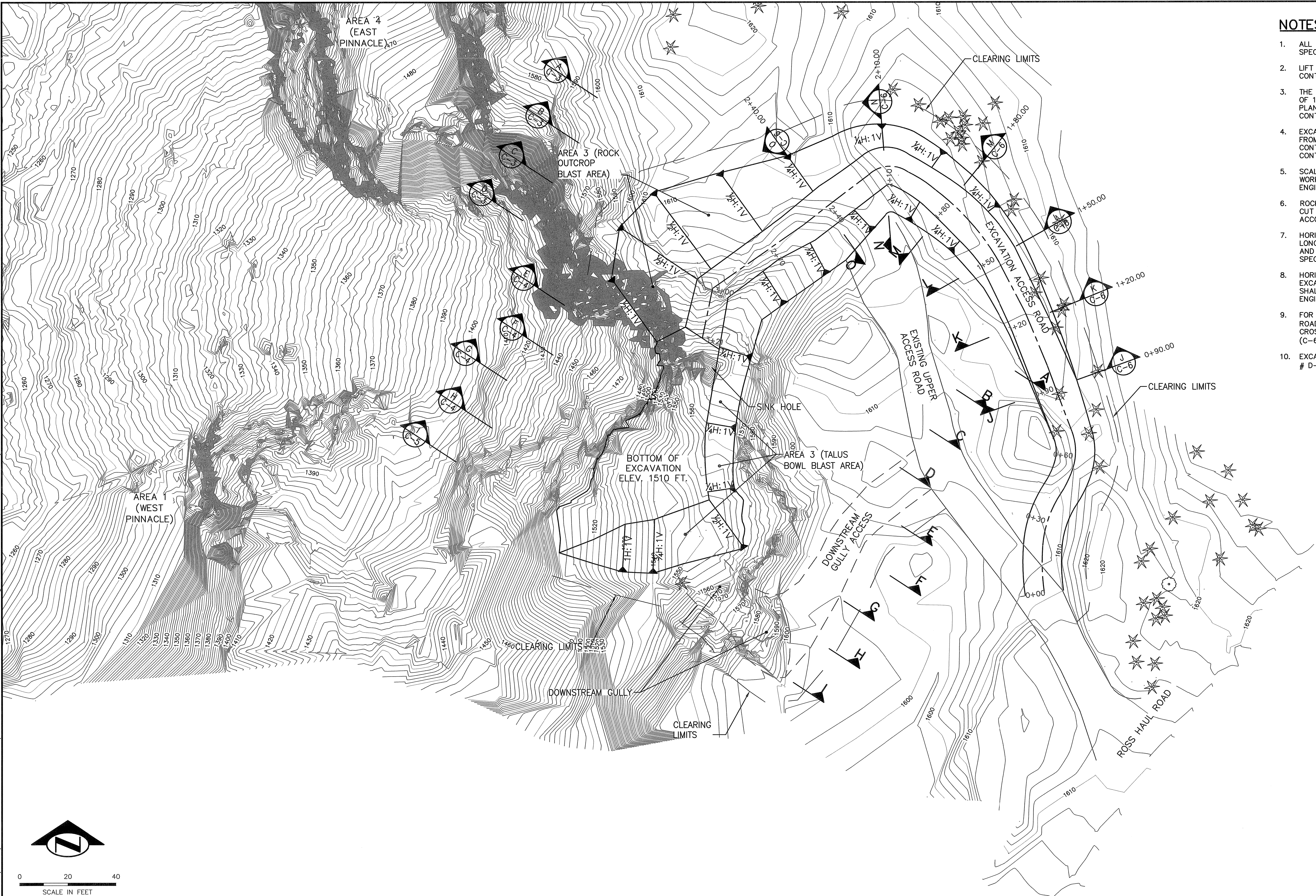
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DESIGN: DSM	2/21/2012
CHECK: DR	2/21/2012

Seattle City Light
Power Production & Substations
APPROVED FOR SEATTLE CITY LIGHT
DATE: 2/21/2012
SCOTT McLEAN

SUBJECT	
SLOPE STABILIZATION	
LOCATION	
DIABLO DAM AND RESERVOIR	
TITLE	
ROSS POWERHOUSE ROCK SLIDE STABILIZATION VICINITY MAP & DRAWING INDEX	

SHEET	
1 OF 9	
CLASS / SHEET	
G-1	
DRAWING NO.	
D-46667	
SCALE	REV. NO.
NONE	1

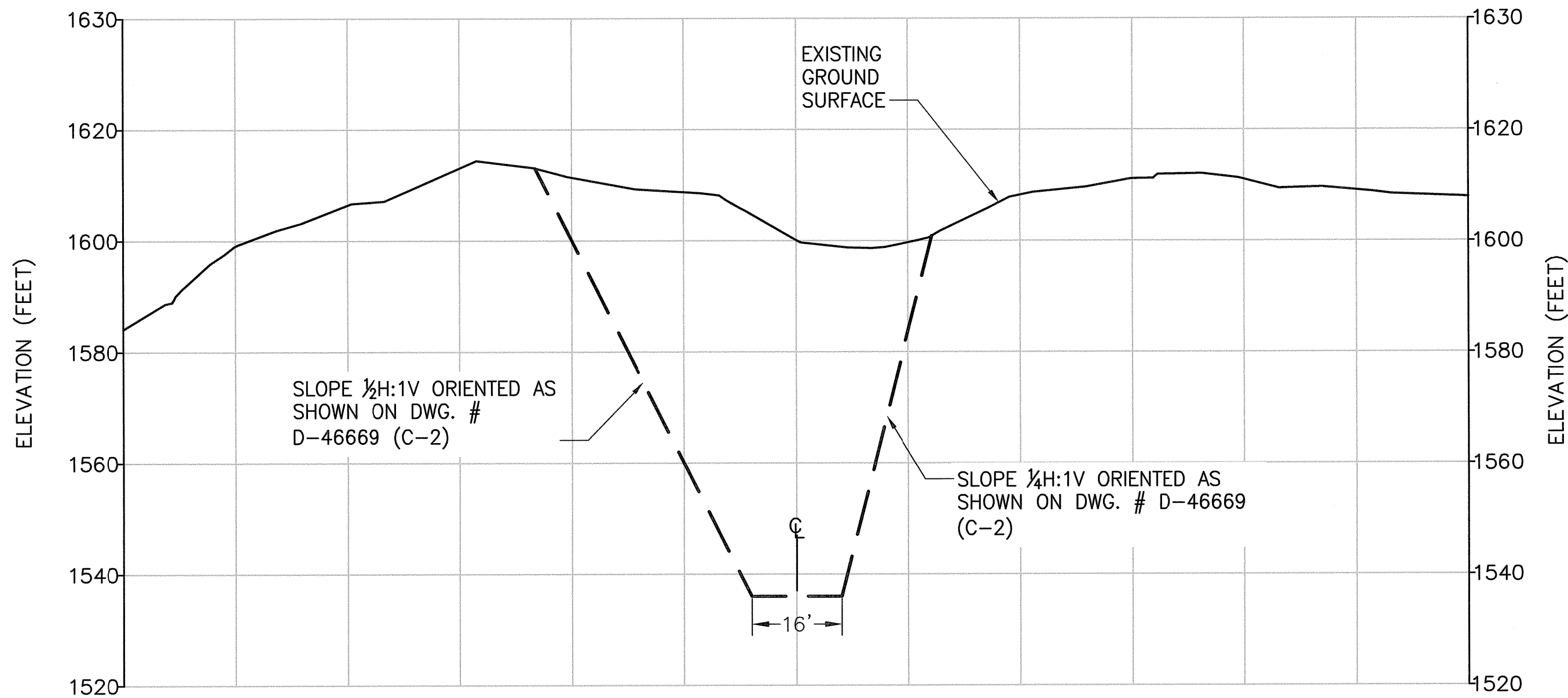
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- NOTES:**
1. ALL EXCAVATION WORK SHALL CONFORM TO SPECIFICATION SECTION 2-17 ROCK BLASTING.
 2. LIFT HEIGHTS ARE TO BE DETERMINED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.
 3. THE EXCAVATION ACCESS ROAD SHALL BE A MINIMUM OF 10 FEET WIDE. ADDITIONAL WIDTH SHOWN ON THE PLANS IS PROVIDED FOR FALLOUT AREA AND DRAINAGE CONTROL.
 4. EXCAVATION WITHIN THE EXCAVATION ACCESS ROAD FROM STATION 0+00 TO 0+90 DOES NOT REQUIRE CONTROLLED BLASTING. MEASUREMENT FOR CONTROLLED BLASTING SHALL BEGIN AT STATION 0+90.
 5. SCALE INTERMEDIATE SLOPES BEFORE PERFORMING WORK FOR SUBSEQUENT LIFTS AS DIRECTED BY THE ENGINEER.
 6. ROCK BOLTS SHALL BE INSTALLED TO STABILIZE NEW CUT SLOPES AS DIRECTED BY THE ENGINEER AND IN ACCORDANCE WITH SPECIFICATION SECTION 8-38.
 7. HORIZONTAL DRAINS SHALL BE INSTALLED 20 FEET LONG AT LOCATIONS APPROVED BY THE ENGINEER AND SHALL BE INSTALLED IN ACCORDANCE WITH SPECIFICATION SECTION 8-35.
 8. HORIZONTAL DRAINS WITHIN THE LIMITS OF THE EXCAVATION ACCESS ROAD ARE NOT ANTICIPATED BUT SHALL BE INSTALLED AS DETERMINED BY THE ENGINEER.
 9. FOR ACCESS ROAD DETAILS REFER TO THE ACCESS ROAD PROFILE ON DWG. # D-46672 (C-5) AND CROSS-SECTION J THROUGH O ON DWG. # D-46673 (C-6).
 10. EXCAVATION ACCESS ROAD GRADE IS SHOWN ON DWG. # D-46672 (C-5).

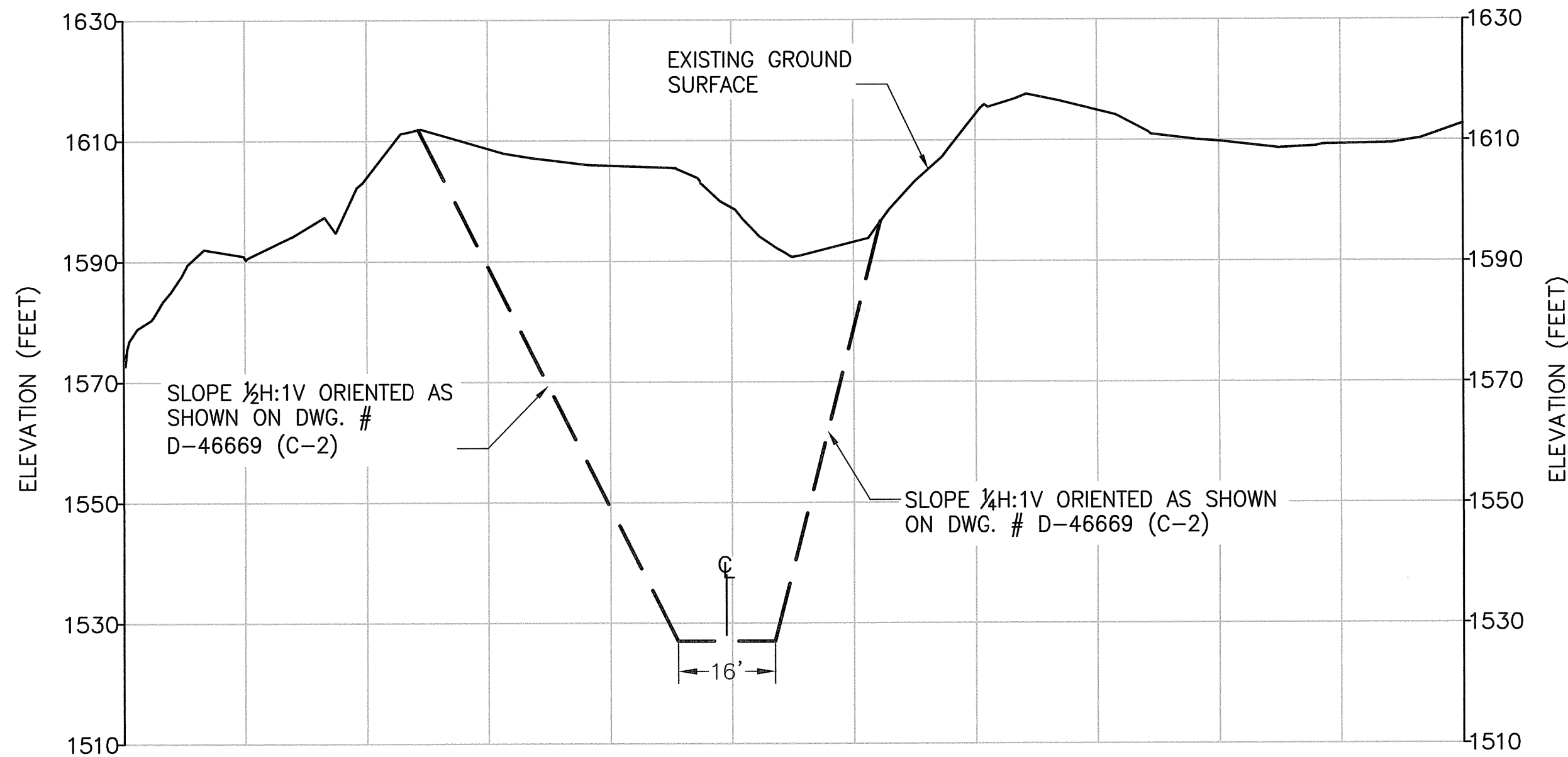
ONE INCH AT FULL SIZE		REVISIONS		IMAGE		DRAWN BY: CHECKED BY: APPROVED BY:		DESCRIPTION		LANDSLIDE TECHNOLOGY 10250 S.W. Greenburg Road, Suite 111 Portland, Oregon 97223 Phone 503-452-1200 Fax 503-452-1528				ENDORSEMENTS		 Seattle City Light Power Production & Substations APPROVED FOR SEATTLE CITY LIGHT 2/24/12 <i>John McLean</i>		SUBJECT		SHEET 3 OF 9	
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DRAWN BY: CHECKED BY: APPROVED BY:		DATE		DRAWN BY: CHECKED BY: APPROVED BY:		DESCRIPTION		LANDSLIDE TECHNOLOGY 10250 S.W. Greenburg Road, Suite 111 Portland, Oregon 97223 Phone 503-452-1200 Fax 503-452-1528				ENDORSEMENTS		 Seattle City Light Power Production & Substations APPROVED FOR SEATTLE CITY LIGHT 2/24/12 <i>John McLean</i>		SUBJECT		SHEET 3 OF 9			
DRAWN BY: CHECKED BY: APPROVED BY:		DATE		DRAWN BY: CHECKED BY: APPROVED BY:		DESCRIPTION		LANDSLIDE TECHNOLOGY 10250 S.W. Greenburg Road, Suite 111 Portland, Oregon 97223 Phone 503-452-1200 Fax 503-452-1528				ENDORSEMENTS		 Seattle City Light Power Production & Substations APPROVED FOR SEATTLE CITY LIGHT 2/24/12 <i>John McLean</i>		SUBJECT		SHEET 3 OF 9			
DRAWN BY: CHECKED BY: APPROVED BY:		DATE		DRAWN BY: CHECKED BY: APPROVED BY:		DESCRIPTION		LANDSLIDE TECHNOLOGY 10250 S.W. Greenburg Road, Suite 111 Portland, Oregon 97223 Phone 503-452-1200 Fax 503-452-1528				ENDORSEMENTS		 Seattle City Light Power Production & Substations APPROVED FOR SEATTLE CITY LIGHT 2/24/12 <i>John McLean</i>		SUBJECT		SHEET 3 OF 9			
DRAWN																					

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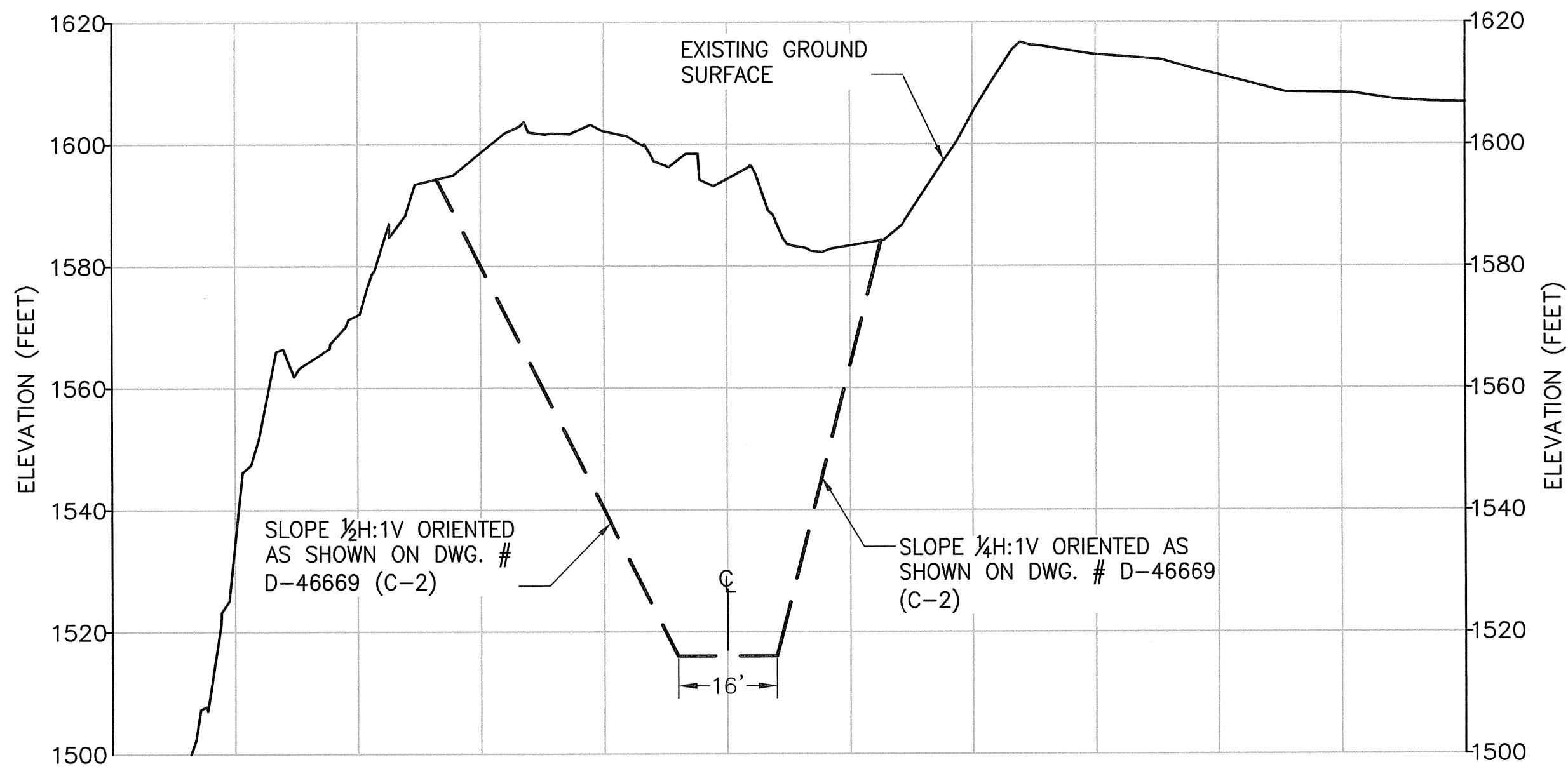
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A
C-2



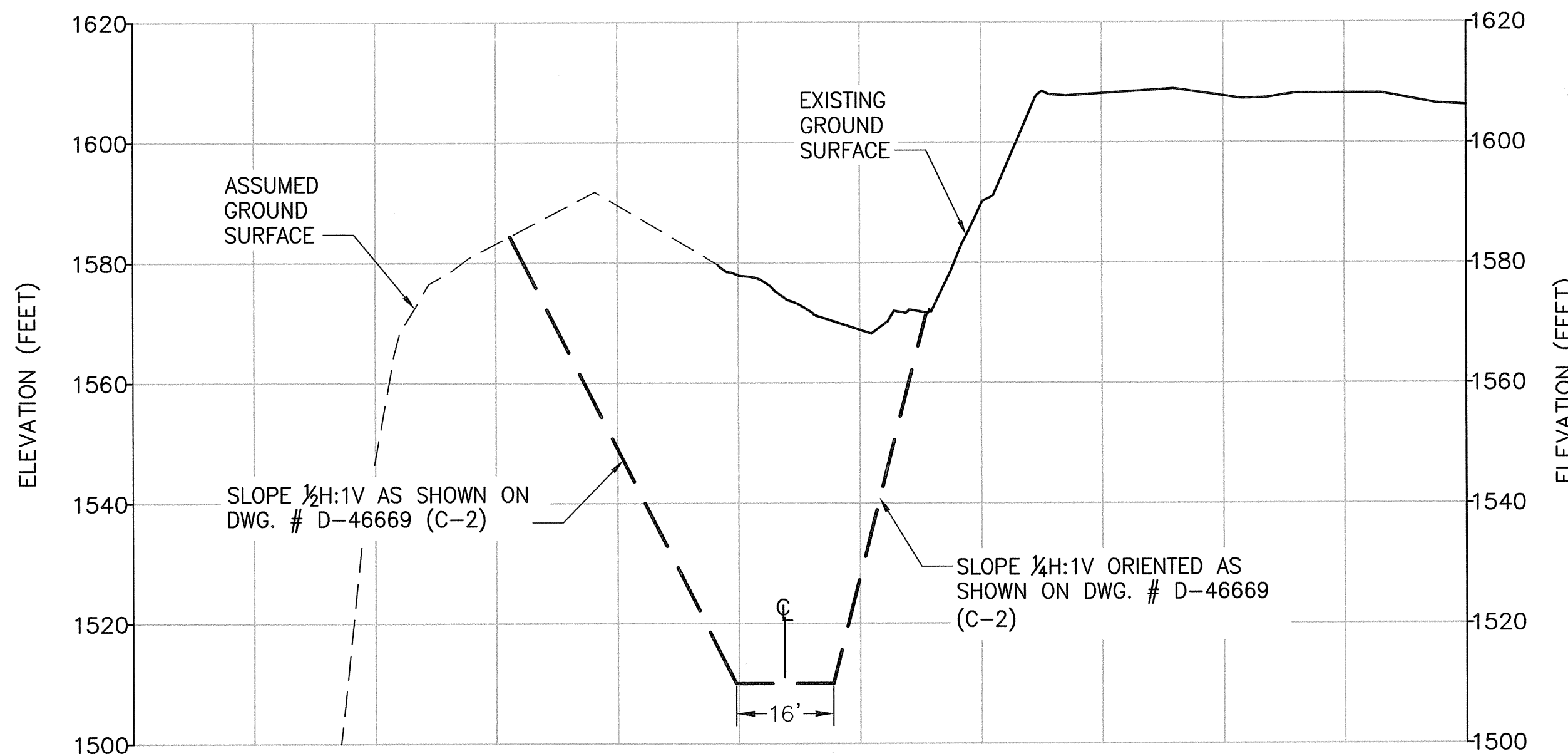
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B
C-2



CROSS SECTION
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C
C-2






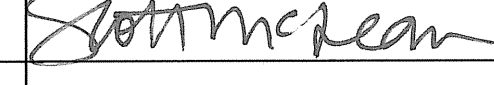
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D
C-2

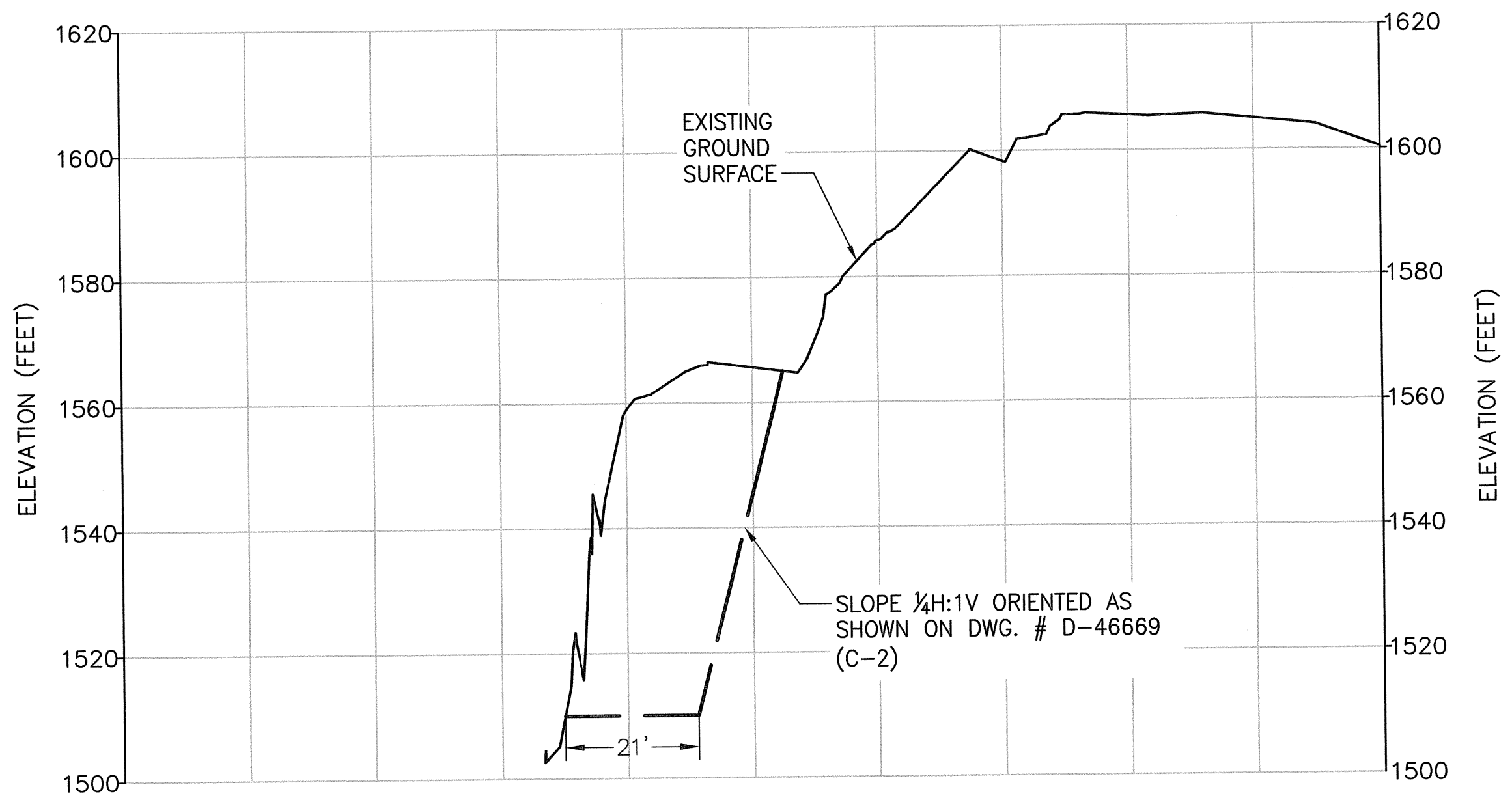
NOTES:

1. SLOPES SHALL BE SLIGHTLY STEEPENED AS NECESSARY TO MAKE UP FOR 18-INCH WIDE BENCHES USED TO ACCOMMODATE DRILLING OFFSETS BETWEEN EXCAVATION LIFTS.

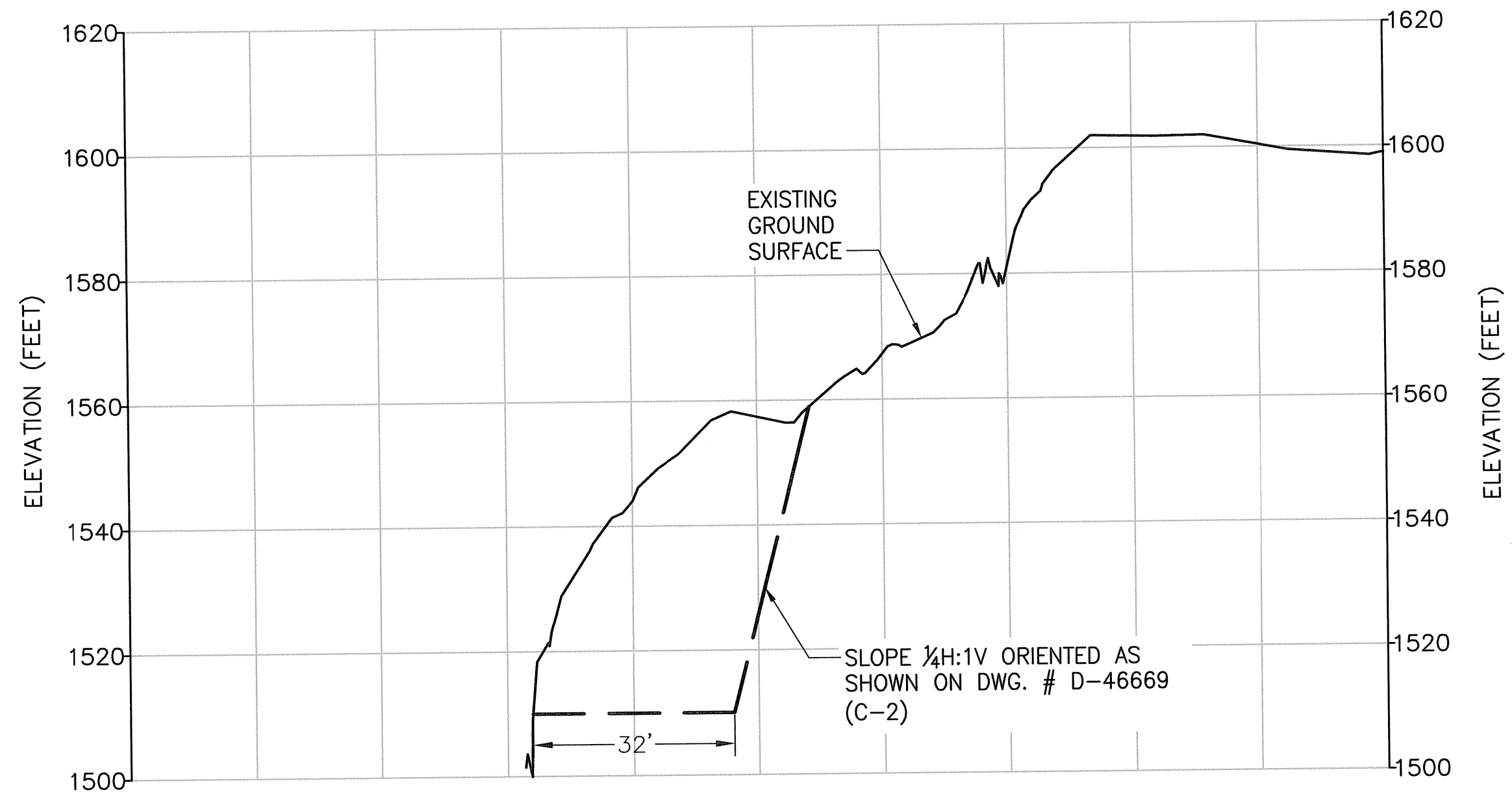
0 20 40
SCALE IN FEET

ONE INCH AT FULL SIZE		REVISIONS		DRAWN BY: CHECKED BY: APPROVED BY:		WORK ORDER #:		DESCRIPTION		 10250 S.W. Greenburg Road, Suite 111 Portland, Oregon 97223 Phone 503-452-1200 Fax 503-452-1528		 RENEWED: 10/04/13		<table><tr><th colspan="2">ENDORSEMENTS</th></tr><tr><td>SIGNATURE</td><td>DATE</td></tr><tr><td>DRAWN: NAU</td><td>2/3/2012</td></tr><tr><td>CHECK: BAG</td><td>2/3/2012</td></tr><tr><td>DESIGN: BAG</td><td>12/19/2011</td></tr><tr><td>CHECK: LAP</td><td>12/19/2011</td></tr><tr><td>DATE</td><td>2/24/12</td></tr></table>		ENDORSEMENTS		SIGNATURE	DATE	DRAWN: NAU	2/3/2012	CHECK: BAG	2/3/2012	DESIGN: BAG	12/19/2011	CHECK: LAP	12/19/2011	DATE	2/24/12	 Seattle City Light Power Production & Substations APPROVED FOR SEATTLE CITY LIGHT 		SUBJECT		SHEET	
ENDORSEMENTS																																			
SIGNATURE	DATE																																		
DRAWN: NAU	2/3/2012																																		
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DESIGN: BAG	12/19/2011																																		
CHECK: LAP	12/19/2011																																		
DATE	2/24/12																																		
LOCATION		CLASS \ SHEET		DRAWING NO.		SCALE		REV. NO.																											
DIABLO DAM AND RESERVOIR		C-3		D-46670		1" = 20'		0																											
TITLE		ROSS POWERHOUSE ROCK SLIDE STABILIZATION CROSS SECTIONS																																	

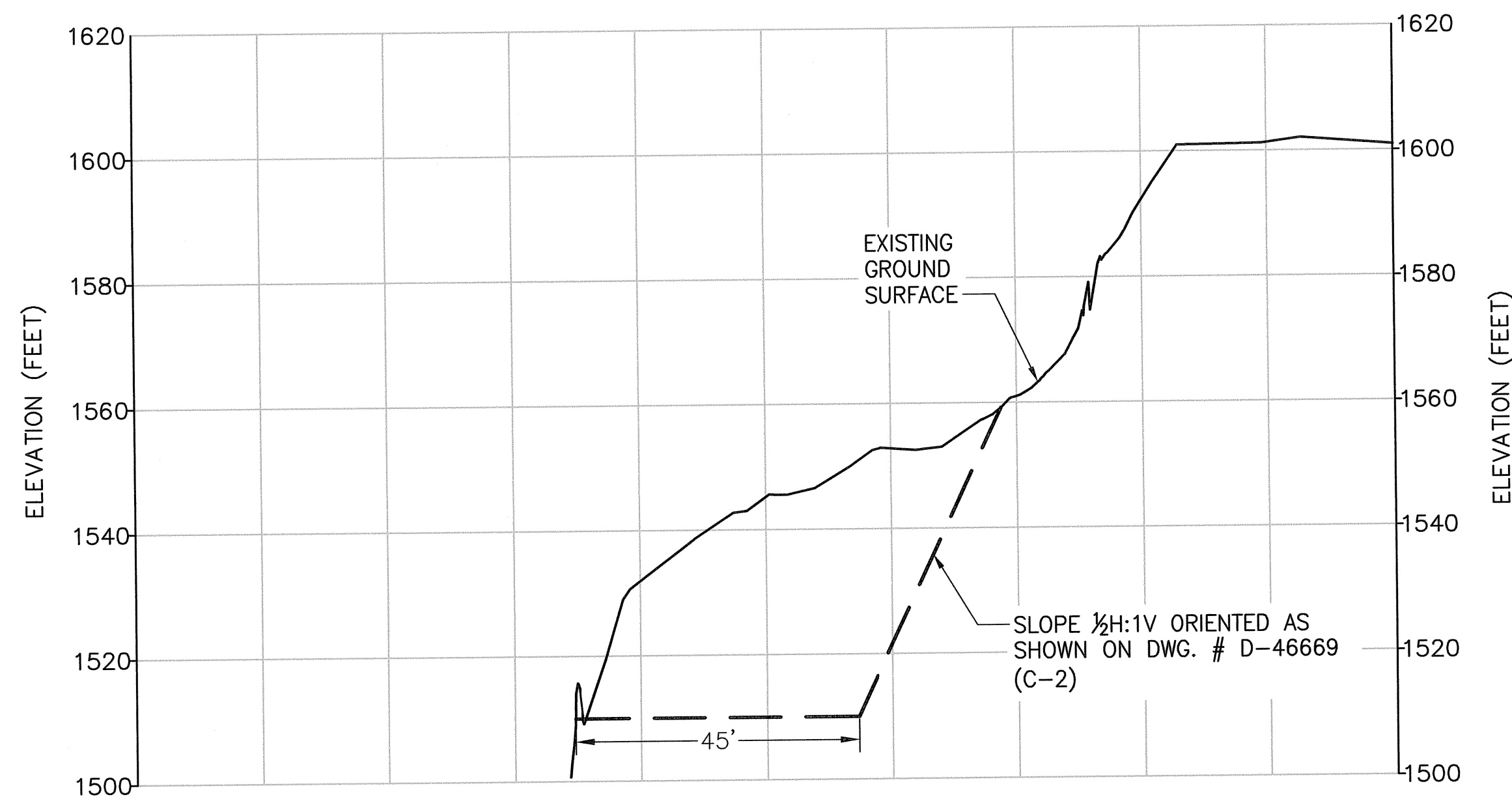
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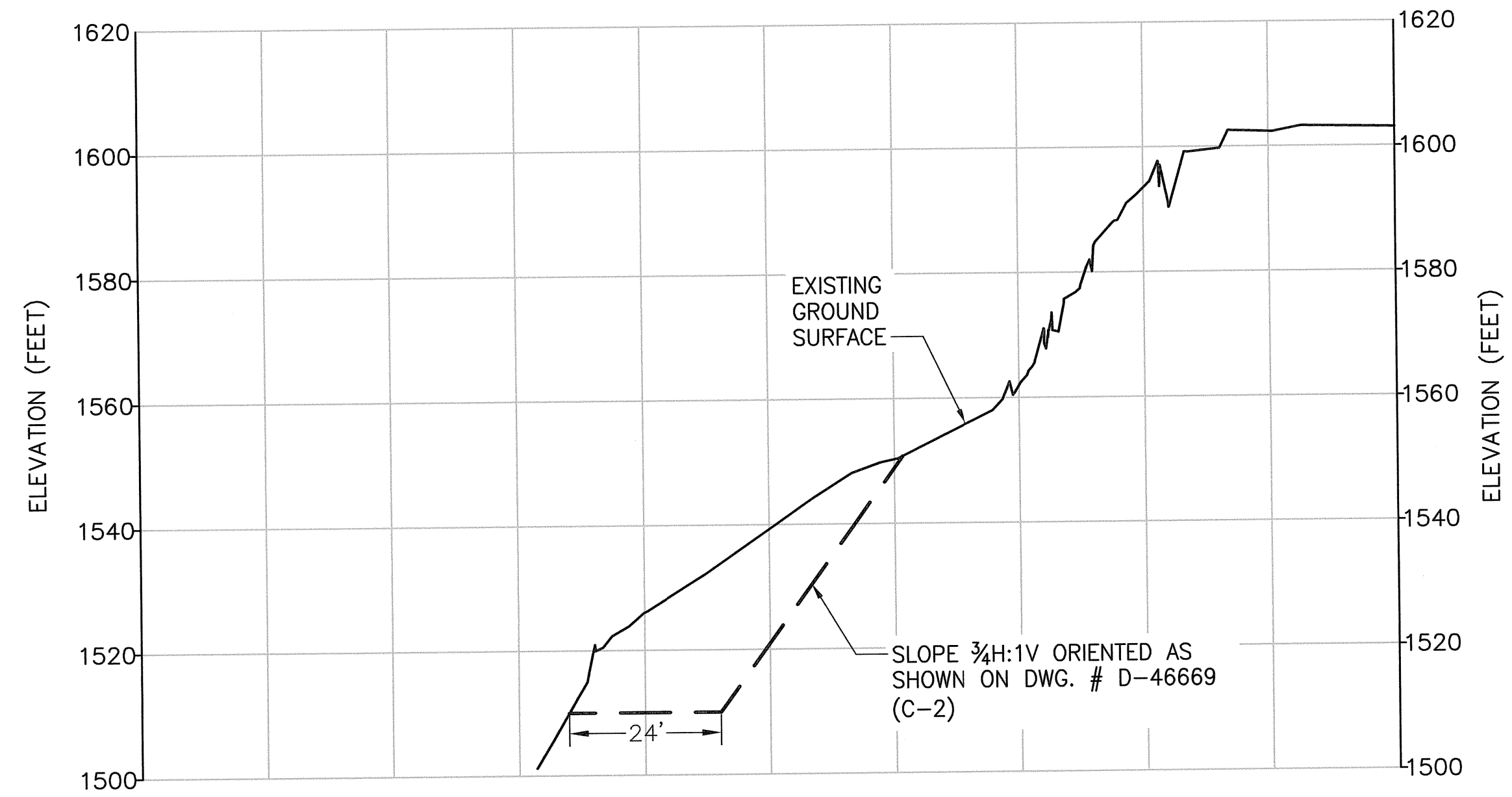
CROSS SECTION E
C-2
SCALE 1" = 20'
HORIZONTAL=VERTICAL



CROSS SECTION F
C-2
SCALE 1" = 20'
HORIZONTAL=VERTICAL



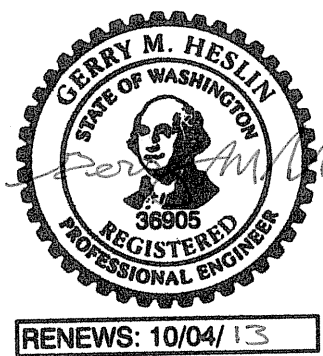
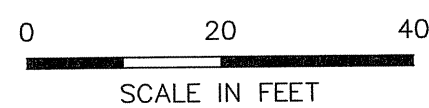
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C-2
SCALE 1" = 20'
HORIZONTAL=VERTICAL



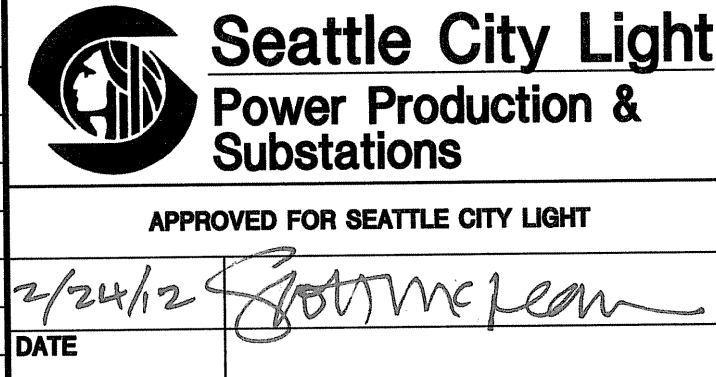
CROSS SECTION H
C-2
SCALE 1" = 20'
HORIZONTAL=VERTICAL

NOTES:

1. SLOPES SHALL BE SLIGHTLY STEEPENED AS NECESSARY TO MAKE UP FOR 18-INCH WIDE BENCHES USED TO ACCOMMODATE DRILLING OFFSETS BETWEEN EXCAVATION LIFTS.

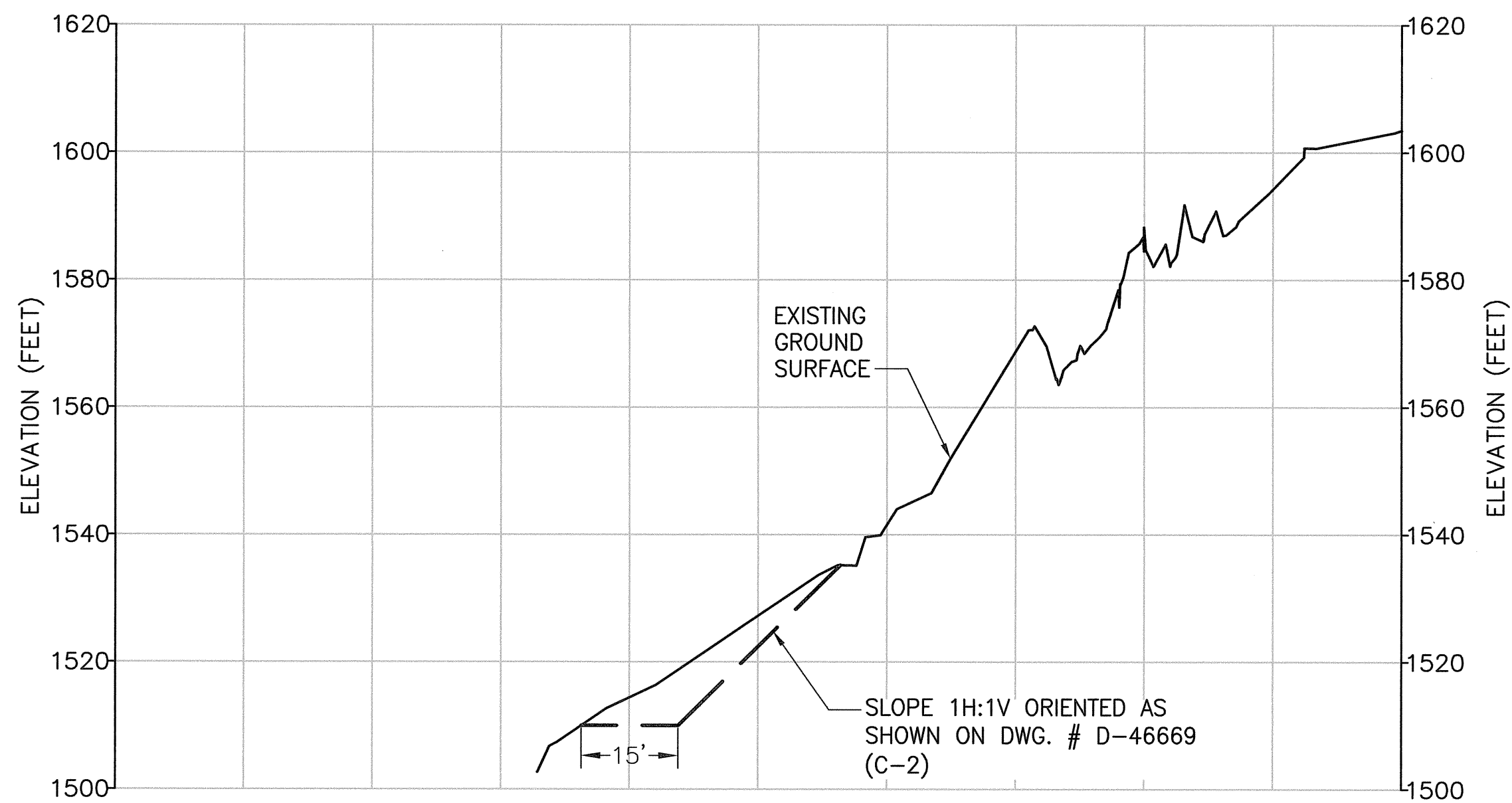


ENDORSEMENTS	
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DRAWN: NAU	2/3/2012
CHECK: BAG	2/3/2012
DESIGN: BAG	12/19/2011
CHECK: LAP	12/19/2011



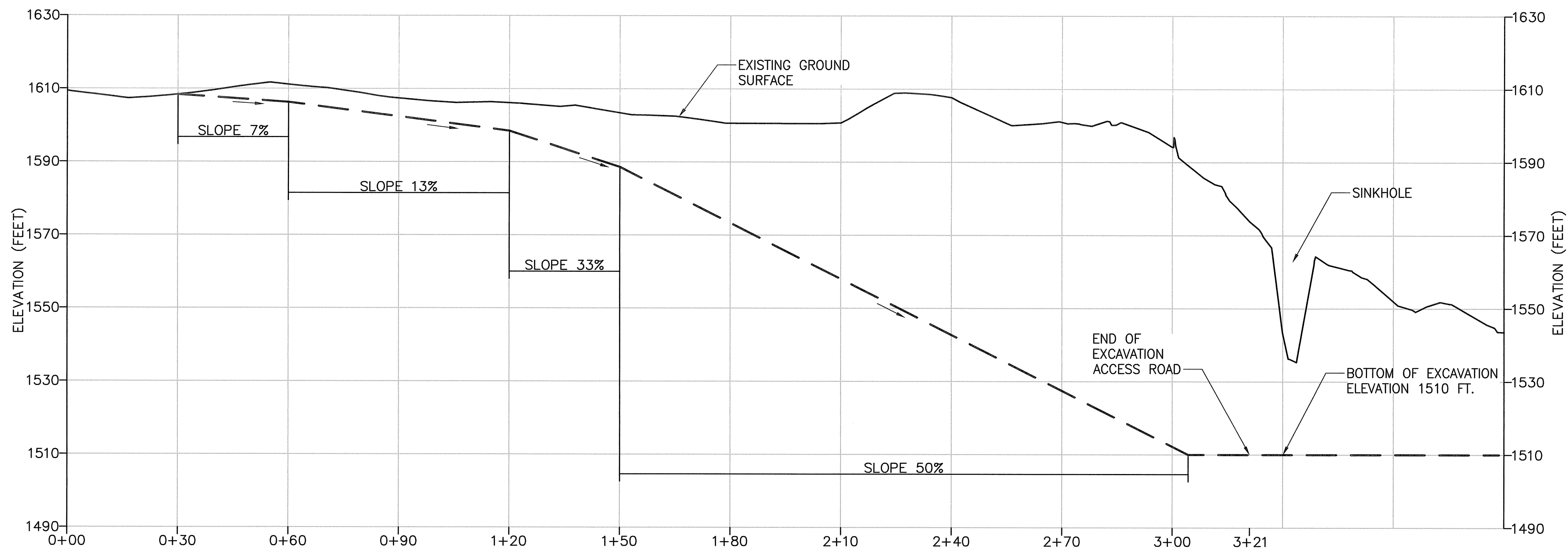
SUBJECT		SHEET	
LOCATION		5 OF 9	
TITLE		CLASS \ SHEET	
DIABLO DAM AND RESERVOIR		C-4	
ROSS POWERHOUSE		DRAWING NO.	
ROCK SLIDE STABILIZATION		D-46671	
CROSS SECTIONS		SCALE	REV. NO.
		1" = 20'	0

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CROSS SECTION
SCALE 1" = 20'
HORIZONTAL=VERTICAL

1
C-2



ACCESS ROAD PROFILE
SCALE 1" = 20'
HORIZONTAL=VERTICAL

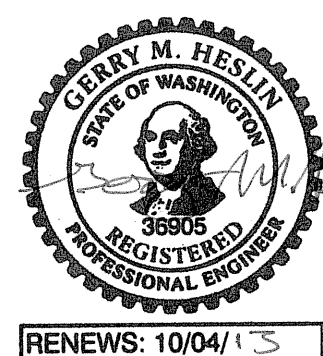
NOTES:

1. SLOPES SHALL BE SLIGHTLY STEEPENED AS NECESSARY TO MAKE UP FOR 18-INCH WIDE BENCHES USED TO ACCOMMODATE DRILLING OFFSETS BETWEEN EXCAVATION LIFTS.

0 20 40
SCALE IN FEET

REVISIONS		ENDORSEMENTS		Seattle City Light		SUBJECT		SHEET	
REV	DATE	SIGNATURE	DATE	Power Production & Substations		LOCATION		6 OF 9	
DRAWN BY: CHECKED BY: APPROVED BY:		CHECK: BAG 2/3/2012		APPROVED FOR SEATTLE CITY LIGHT		TITLE		CLASS \ SHEET	
WORK ORDER #:		DESIGN: BAG 12/19/2011		2/24/12 <i>[Signature]</i>		ROSS POWERHOUSE		DRAWING NO.	
DESCRIPTION		CHECK: LAP 12/19/2011		DATE		ROCK SLIDE STABILIZATION		D-46672	
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								REV. NO.	
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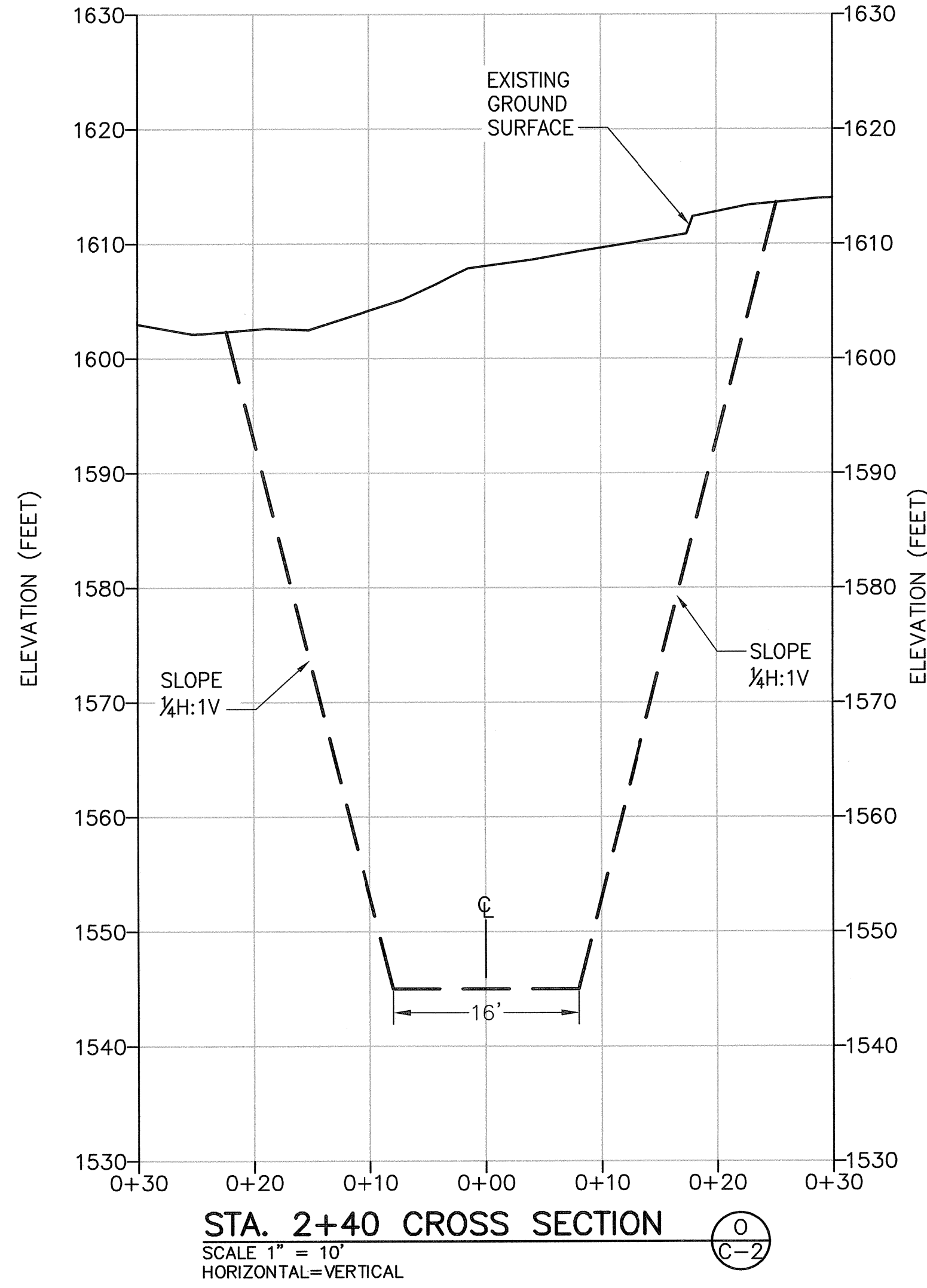
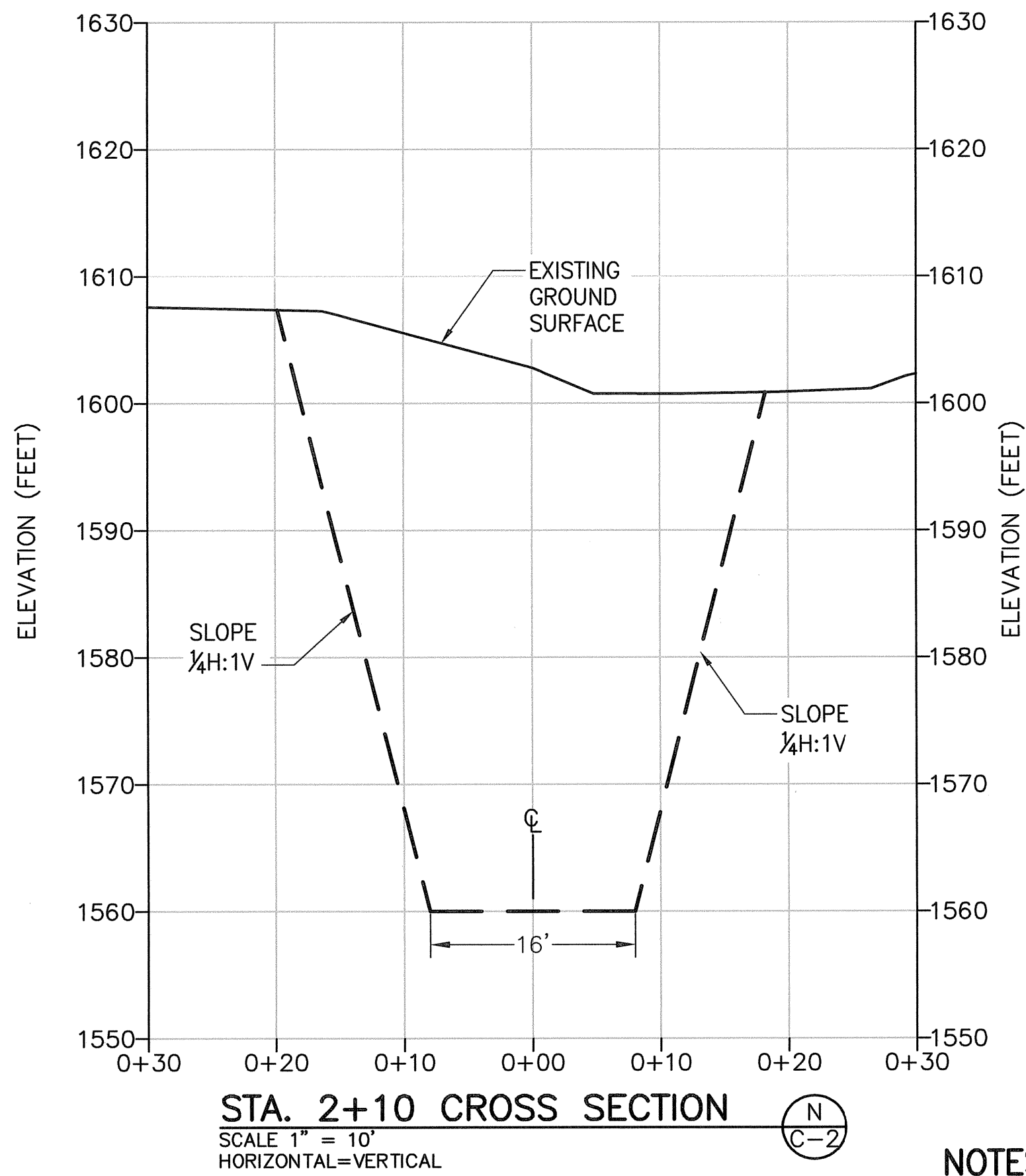
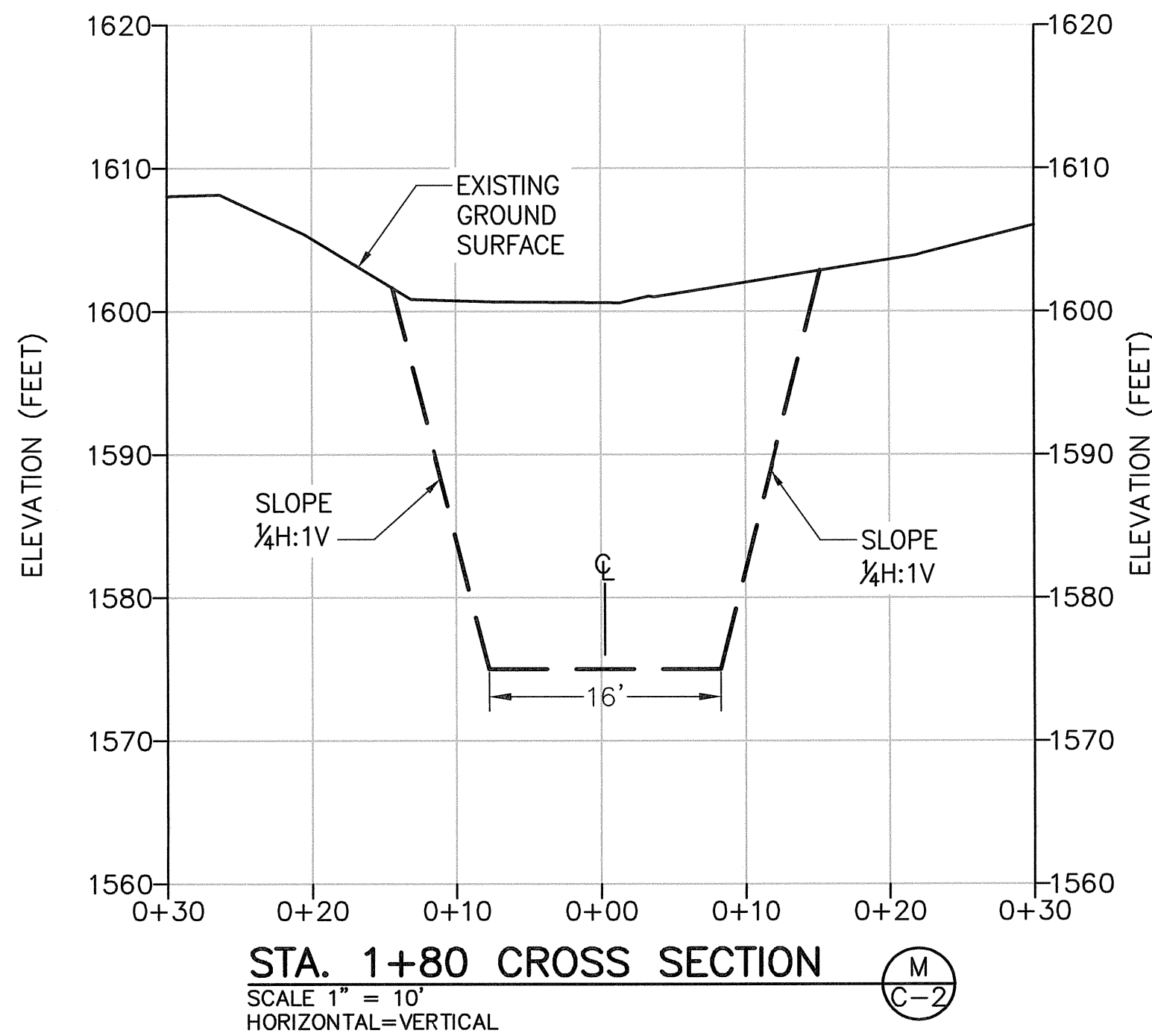
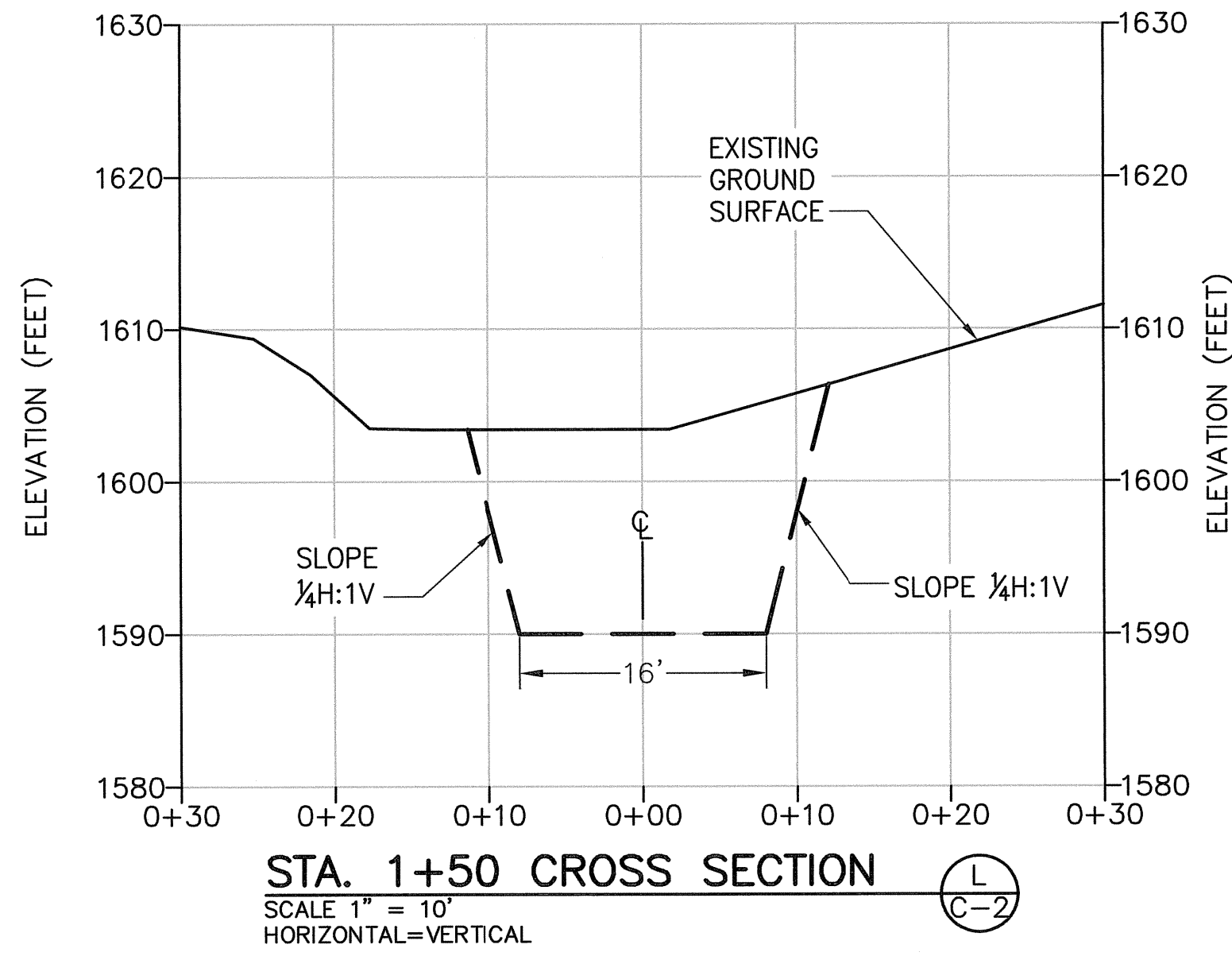
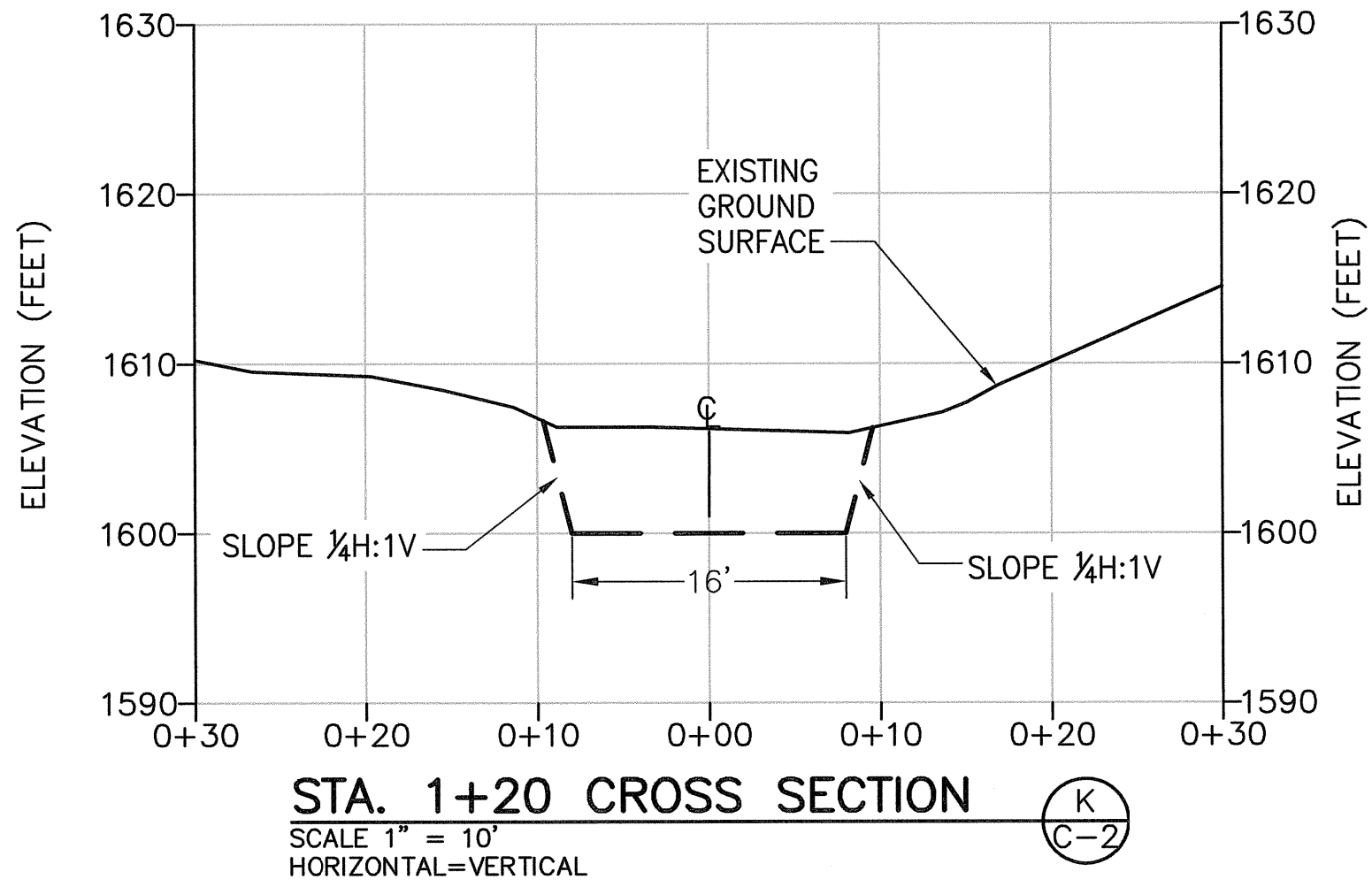
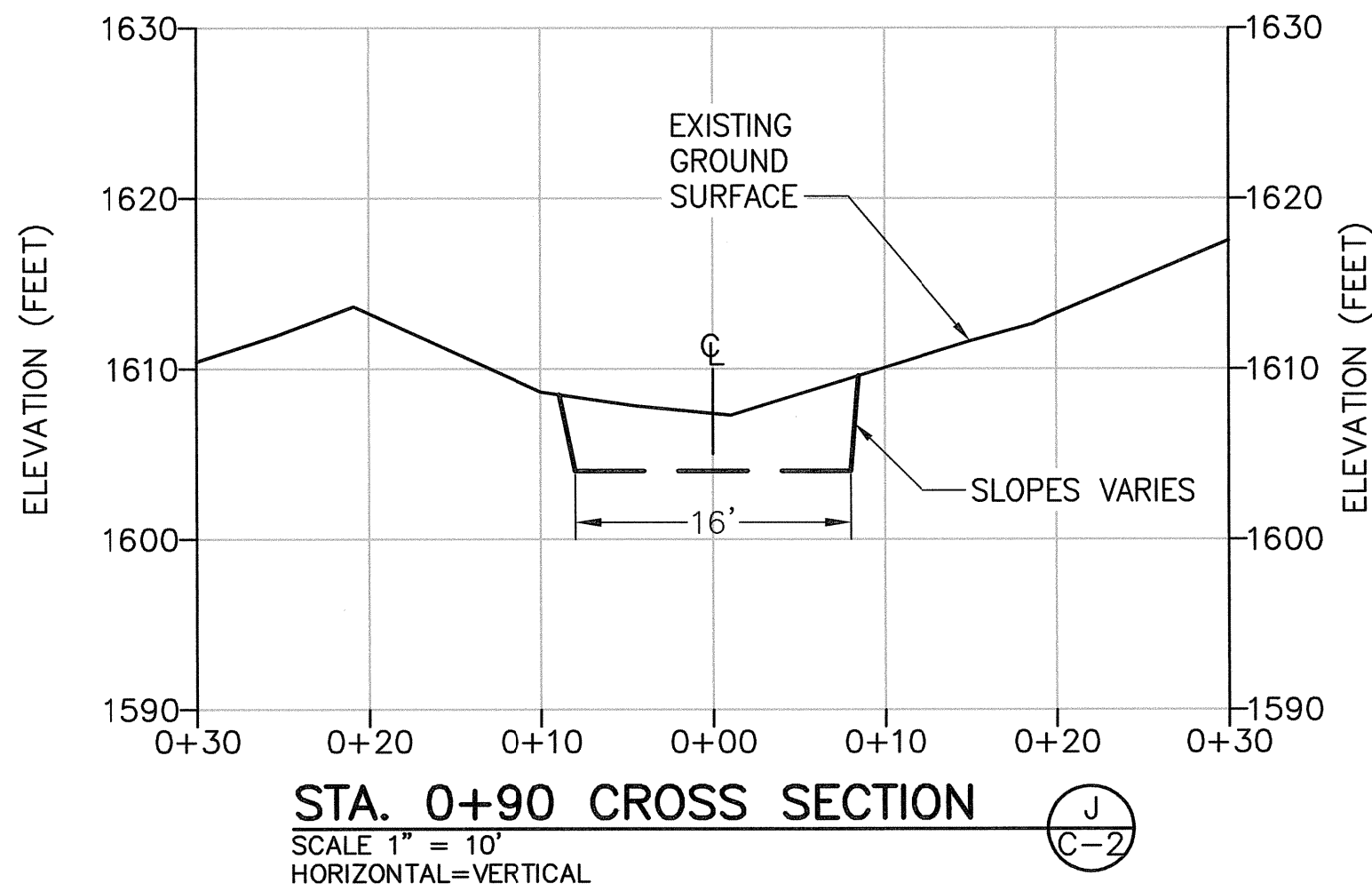
LANDSLIDE TECHNOLOGY
10250 S.W. Greenburg Road, Suite 111
Portland, Oregon 97223
Phone 503-452-1200 Fax 503-452-1528



Seattle City Light
Power Production & Substations

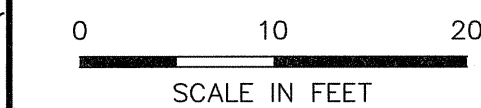
APPROVED FOR SEATTLE CITY LIGHT

\\W2K82\graphics\Graphic Arts\2000\2089 - Ross Dam Rockfall\D-46670-Ross-Section A-L.dwg, ANSI-D: 22x34, NSMITH, February 23, 2012 10:20 AM



NOTES:

- SLOPES SHALL BE SLIGHTLY STEEPENED AS NECESSARY TO MAKE UP FOR 18-INCH WIDE BENCHES USED TO ACCOMMODATE DRILLING OFFSETS BETWEEN EXCAVATION LIFTS.

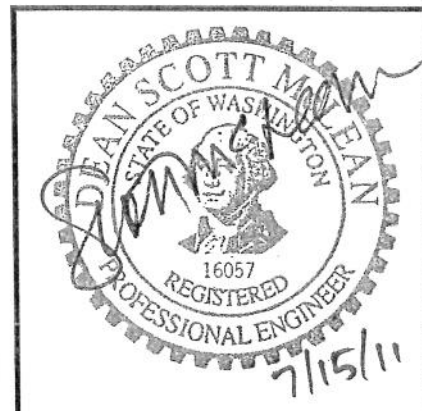
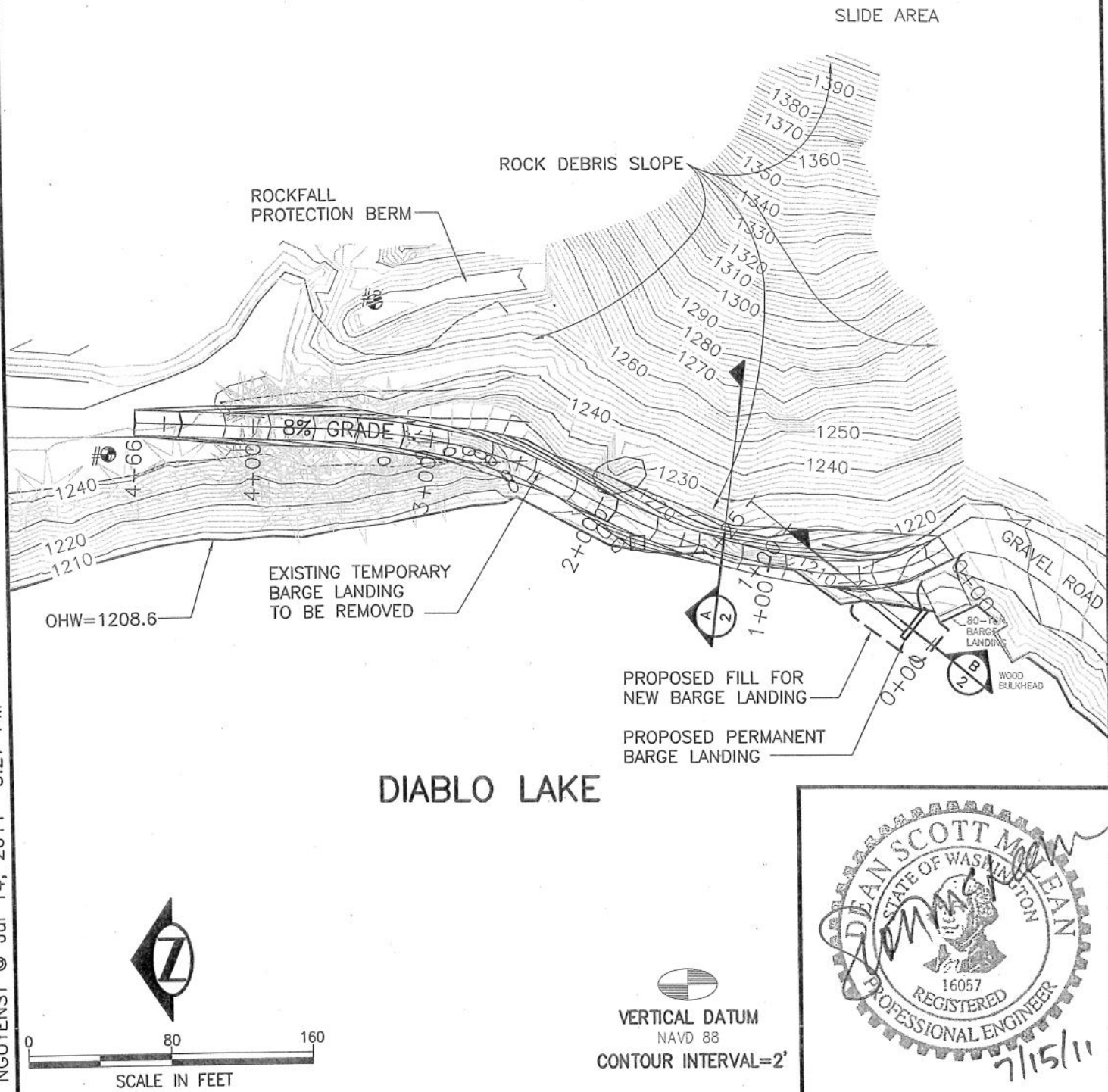


ONE INCH AT FULL SIZE		REVISIONS		ENDORSEMENTS		Seattle City Light Power Production & Substations APPROVED FOR SEATTLE CITY LIGHT		SUBJECT DIABLO DAM AND RESERVOIR		SHEET 7 OF 9	
REV	DATE	IMAGE	DRAWN BY	CHECKED BY	APPROVED BY	SIGNATURE	DATE	LOCATION	TITLE ROSS POWERHOUSE ROCK SLIDE STABILIZATION CROSS SECTIONS		CLASS \ SHEET C-6
DRAWN BY: CHECKED BY: APPROVED BY:				DESIGN: BAG 12/19/2011				DRAWING NO. D-46673			
WORK ORDER #:				CHECK: LAP 12/19/2011				SCALE 1" = 10'			
DESCRIPTION				DATE				REV. NO. 0			

LANDSLIDE TECHNOLOGY
10250 S.W. Greenburg Road, Suite 111
Portland, Oregon 97223
Phone 503-452-1200 Fax 503-452-1528

RENEWALS: 10/04/13

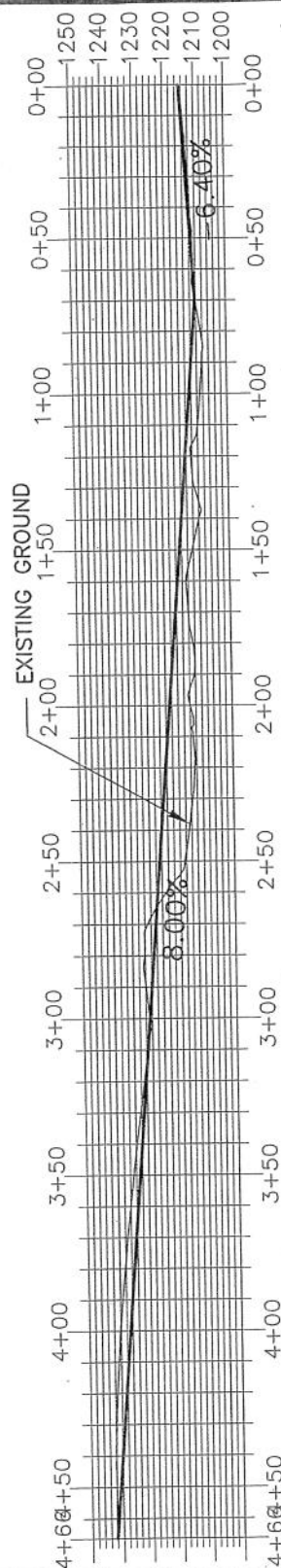
I:\PROJECTS\03_PROJECTS_SKAGIT\ROSS PH ROCKSLIDE AT JEEP ACCESS ROAD 2010, 95146-01\DWGS\A5221A-R1.DWG
LAYOUT: A5221, PLOTTED BY: NGUYENST @ Jul 14, 2011 3:27 PM



SITE PLAN

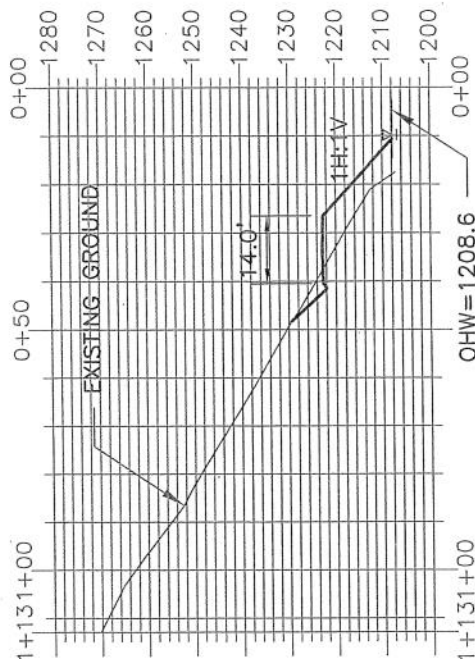
PROJECT: ROSS ROAD ACROSS ROCK SLIDE
REF.#: TO BE DETERMINED
PURPOSE: RESTORE HEAVY-LIFT ACCESS TO ROSS POWERHOUSE
APPLICANT: SEATTLE CITY LIGHT
IN: DIABLO LAKE, WASHINGTON
NEAR: DIABLO, WHATCOM COUNTY, WASHINGTON
DATE: 07/14/2011

DR:	SON NGUYEN
DSGN:	SCOTT McLEAN
APPRV:	SCOTT McLEAN
SHEET:	2 OF 4
DRAWING NO.	REV. NO.
A-5221	1



PROPOSED ROAD PROFILE

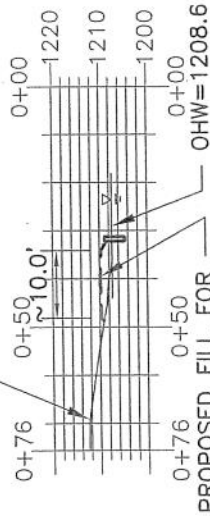
SCALE: HORZ. 1"=60', VERT. 1"=60'



TYPICAL CROSS SECTION @ A

SCALE: HORZ. 1"=40', VERT. 1"=40'

EXISTING GROUND



PROFILE @ PERMANENT BARGE LANDING

SCALE: HORZ. 1"=40', VERT. 1"=40'

EXISTING GROUND

ECOLOGY BLOCKS FOR ROCKFALL PROTECTION

14.0'

MSE WALL

OHW=1208.6

PERMANENT ROADWAY CROSS SECTION @ A

SCALE: HORZ. 1"=40', VERT. 1"=40'



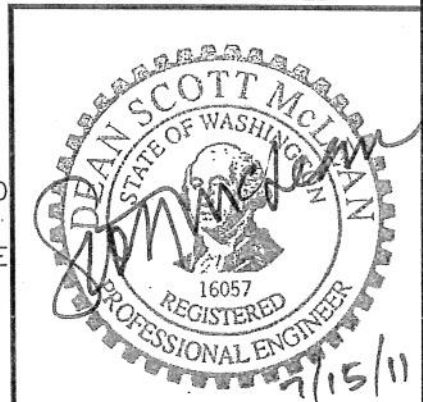
PROFILE AND CROSS SECTIONS

PROJECT: ROSS ROAD ACROSS ROCK SLIDE
REF.#: TO BE DETERMINED
PURPOSE: RESTORE HEAVY-LIFT ACCESS TO ROSS POWERHOUSE
APPLICANT: SEATTLE CITY LIGHT
IN: DIABLO LAKE, WASHINGTON
NEAR: DIABLO, WHATCOM COUNTY, WASHINGTON
DATE: 07/14/2011

DR: SON NGUYEN
DSGN: SCOTT McLEAN
APPRV: SCOTT McLEAN
SHEET: 3 OF 4
DRAWING NO. A-5222
REV. NO. 1

PROJECT DESCRIPTION:

1. THE PORTION OF THE ROSS DAM "JEEP ROAD" DESTROYED BY THE 3/15/2010 ROSS ROCK SLIDE WILL BE RE-CONSTRUCTED ACROSS THE ROCK DEBRIS PILE. GENERALLY, THE REPLACEMENT ROADWAY WILL CONTOUR ACROSS THE ROCK DEBRIS PILE ON APPROXIMATELY AN 8% DOWNSLOPE, CONNECTING TO THE PORTIONS OF THE JEEP ROAD UNDISTURBED BY THE ROCK SLIDE AS SHOWN ON THE ATTACHED DRAWINGS.
2. BECAUSE THE CONTOURS OF THE ROCK PILE AFTER BLASTING WORK ARE UNKNOWN, THE ATTACHED DRAWINGS ARE CONCEPTUAL IN NATURE. REVISED DRAWINGS WILL BE PROVIDED AFTER COMPLETION OF ROCK STABILIZATION AND BLASTING WORK TO REFLECT ACTUAL FIELD CONDITIONS.
3. THE ROAD ACROSS THE ROCK SLIDE WILL BE CONSTRUCTED IN TWO STAGES: A TEMPORARY ROAD FOLLOWED BY A PERMANENT ROAD. THE TEMPORARY ROAD WILL BE APPROXIMATELY 14 FEET WIDE AND WILL ESTABLISH A ROUGH ROAD. BED FOR THE PERMANENT ROADWAY TO BE BUILT UPON. THE TEMPORARY ROAD WILL BE CONSTRUCTED BY FIRST BREAKING DOWN LARGE BOULDERS (UP TO 25 FEET IN DIAMETER) TO SMALLER SIZES OF ABOUT 6 INCHES OR LESS, SO A HYDRAULIC EXCAVATOR CAN MOVE THE MATERIAL INTO POSITION AS NEEDED. THE HYDRAULIC EXCAVATOR WILL WORK ITS WAY ACROSS THE ROCK DEBRIS PILE CONSTRUCTING THE ROADBED BY EXCAVATING ROCK ON THE HIGH SIDE OF THE ROAD, AND PULLING MATERIAL DOWN AS NEEDED FOR FILL ON THE LOW SIDE.
4. FOR THE TEMPORARY ROAD, IT IS ESTIMATED THAT EXCAVATION OF APPROXIMATELY 1,200 CY WILL BE REQUIRED TO RE-CONSTRUCT THE ROAD (0 CY BELOW OHW). IT IS ESTIMATED THAT THERE WILL BE A TOTAL OF APPROXIMATELY 1,500 CY OF FILL (1,200 CY OF THIS BELOW OHW).
5. AFTER COMPLETION OF THE TEMPORARY ROAD, A PERMANENT ROADWAY WILL BE CONSTRUCTED ON TOP OF THE PRELIMINARY ROAD. IT IS ANTICIPATED THAT THE NEW ROADWAY WILL BE RAISED SEVERAL FEET, SUPPORTED ON THE DOWNHILL SIDE WITH A RETAINING WALL SUCH AS A MSE (MECHANICALLY STABILIZED EARTH) WALL, WHICH WILL ALLOW A WIDER CROSS-SECTION FOR ADDITION OF A ROCK PROTECTION FEATURE SUCH AS AN ECOLOGY BLOCK BARRIER AND/OR A CATCHMENT DITCH ON THE UPHILL SIDE OF THE ROAD. DETAILS OF THE PERMANENT ROAD DESIGN WILL BE PROVIDED WHEN AVAILABLE. A TOTAL OF 840 CY OF FILL IS ESTIMATED FOR THE PERMANENT ROAD (WITH 40 CY OR 5% OF THIS INCIDENTAL DISCHARGE BELOW OHW).
6. IN ADDITION, A NEW PERMANENT BARGE LANDING WILL BE CONSTRUCTED AT THE DOWNSTREAM MARGIN OF THE ROCK PILE TO REPLACE THE 100-TON LANDING DESTROYED BY THE MARCH 2010 SLIDE AND THE 80-TON LANDING. NO DESIGN DETAILS OF THE REPLACEMENT BARGE LANDING HAVE BEEN WORKED OUT, BUT WILL BE FORWARDED WHEN AVAILABLE. A TOTAL OF 380 CY OF CUT IS ESTIMATED FOR THE NEW BARGE LANDING (250 CY OF THIS BELOW OHW). 171 CY OF FILL IS ESTIMATED (130 CY OF THIS BELOW OHW).



PROJECT DESCRIPTION

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REF.#: TO BE DETERMINED
PURPOSE: RESTORE HEAVY-LIFT ACCESS TO ROSS POWERHOUSE
APPLICANT: SEATTLE CITY LIGHT
IN: DIABLO LAKE, WASHINGTON
NEAR: DIABLO, WHATCOM COUNTY, WASHINGTON
DATE: 07/14/2010

DR:	SON NGUYEN
DSGN:	SCOTT McLEAN
APPRV:	SCOTT McLEAN
SHEET:	4 OF 4
DRAWING NO.	REV. NO.
A-5223	1