NORTHEAST CHURCH ROCK PROJECT

95% Design Submittal - October 2017
Volume 2 - Design Drawings

Prepared For

UNITED NUCLEAR CORPORATION AND GENERAL ELECTRIC COMPANY

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

DESIGNED K REED
CHECKED M WITLER
APPROVED J CUMBERS

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
COVER SHEET

SHEET
1-01

233001048

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN SUBMITTAL

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McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
SHEET INDEX

SHEET
1-02

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GENERAL NOTES - CIVIL:

GENERAL:

1. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE FROM DAMAGE. ALL IMPROVEMENTS DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE EXPEDITIOUSLY REPAIRED OR RECONSTRUCTED AT THE CONTRACTOR'S EXPENSE WITHOUT ADDITIONAL COMPENSATION.
2. ALL BUILDING COORDINATES ARE TO OUTSIDE CORNER OF COLUMN OR BUILDING.
3. CONTRACTOR SHALL RESTORE ALL SURVEY MONUMENTS THAT ARE DAMAGED OR DESTROYED DURING CONSTRUCTION.

UTILITIES:

1. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES IN AND AROUND THE AREAS OF NEW CONSTRUCTION.
2. THE CONTRACTOR SHALL PROTECT ALL REMAINING EXISTING UTILITIES.
3. LOCATIONS OF UNDERGROUND UTILITIES SHOWN ON THE DRAWINGS WERE OBTAINED FROM AVAILABLE RECORDS. THE CONTRACTOR SHALL VERIFY ALL LOCATIONS AND ELEVATIONS AND SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT UTILITY LINES WHETHER SHOWN OR NOT SHOWN.
4. PRIOR TO ANY CONNECTION TO AN EXISTING UTILITY, THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY OWNER.
5. PRIOR TO ANY EXCAVATION IN THE VICINITY OF ANY EXISTING UNDERGROUND FACILITIES, INCLUDING ALL WATER, SEWER, STORM DRAIN, GAS, PETROLEUM PRODUCTS, OR OTHER PIPELINES; ALL BURIED ELECTRIC POWER, COMMUNICATIONS, OR TELEVISION CABLES; ALL TRAFFIC SIGNAL AND STREET LIGHTING FACILITIES; AND ALL ROADWAY, STATE HIGHWAY, AND RAILROAD RIGHTS-OF-WAY, THE CONTRACTOR. SHALL NOTIFY THE RESPECTIVE AUTHORITIES REPRESENTING THE OWNERS OR AGENCIES RESPONSIBLE FOR SUCH FACILITIES NOT LESS THAN 3 DAYS NOR MORE THAN 7 DAYS PRIOR TO EXCAVATION SO THAT A REPRESENTATIVE OF SAID OWNERS OR AGENCIES CAN BE PRESENT DURING SUCH WORK IF THEY SO DESIRE. IN THE CASE OF THE UNDERGROUND UTILITY SERVICE ALERT CENTER, THIS NOTICE WILL GIVE THEM TIME TO MARK THE LOCATION OF THE UTILITIES. THE CONTRACTOR SHALL ALSO NOTIFY THE REGIONAL OR LOCAL UNDERGROUND SERVICE ALERT COMPANY AT LEAST 3 DAYS, BUT NO MORE THAN 7 DAYS, PRIOR TO SUCH EXCAVATION.

EROSION CONTROL:

1. THE CONTRACTOR SHALL SUBMIT A CSWPPP TO THE DESIGN ENGINEER FOR APPROVAL PRIOR TO THE START OF CONSTRUCTION.
2. NO ACTIVITY MAY BEGIN UNTIL THE CONTRACTOR HAS RECEIVED WRITTEN APPROVAL OF THE CSWPPP.

LEGEND:

- 7200 — EXISTING GROUND SURFACE CONTOURS & ELEVATION, FEET
- 7200 — PROPOSED SURFACE CONTOURS & ELEVATION, FEET
- NECR MINE PERMIT BOUNDARY
- UNC PROPERTY BOUNDARY
- MINE FACILITY OR AREA BOUNDARY
- APPROXIMATE NAVAJO NATION BOUNDARY
- ROADS
- NATURAL DRAINAGE
- x — EXISTING FENCE
- RAL SURFACE SOIL BOUNDARY
- RAL SUBSURFACE SOIL BOUNDARY
- SECTION LINE
- PW — POWER LINES
- PIPELINE
- STRUCTURE
- MATCHLINE STA 10+00 — MATCHLINE
- CULVERT
- GATE
- LOCATION GATE

SYMBOL:

- 36 — SECTION NUMBER
- SURVEY CONTROL POINTS
- MONITORING WELL
- BOREHOLE
- TEST PIT
- S — STORMWATER POND
- X / XX — PROFILE OR CROSS SECTION IDENTIFICATION
- DRAWING NO. WHERE PROFILE/SECTION IS SHOWN
- DETAIL IDENTIFICATION
- X / XXXXXX — DETAIL DESCRIPTION
- XXX — DRAWING NO. WHERE DETAIL IS SHOWN
- X:X — FILL SLOPE, H:V (HORIZONTAL TO VERTICAL)
- X:X — CUT SLOPE, H:V (HORIZONTAL TO VERTICAL)
- X / X — SLOPE RATIO

ACRONYMS:

B	BORING
BMP	BEST MANAGEMENT PRACTICE
CF	CUBIC FEET
CSF	CONSTRUCTION SUPPORT FACILITIES
CTR	CONTROL
CY	CUBIC YARDS
D_{50}	MEDIAN DIAMETER
EB	EAST BORROW
EL	ELEVATION
FT OR '	FEET
GE	GENERAL ELECTRIC COMPANY
GW	GROUNDWATER
HWY	HIGHWAY
MIN	MINIMUM
NB	NORTH BORROW
NECR	NORTHEAST CHURCH ROCK
NM	NEW MEXICO
NN	NAVAJO NATION
NOM.	NOMINAL
PTW	PRINCIPAL THREAT WASTE
PW	POWER
R	RANGE
RAL	REMOVAL ACTION LIMITS
S	STORMWATER
SB	SOUTH BORROW
SQFT	SQUARE FEET
STA	STATION
STP , NTP	TEST PIT
T	TOWN
TBD	TO BE DETERMINED
TDA	TAILINGS DISPOSAL AREA
TPH	TOTAL PETROLEUM HYDROCARBONS
TYP	TYPICAL
UNC	UNITED NUCLEAR CORPORATION
US EPA	UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WB	WEST BORROW

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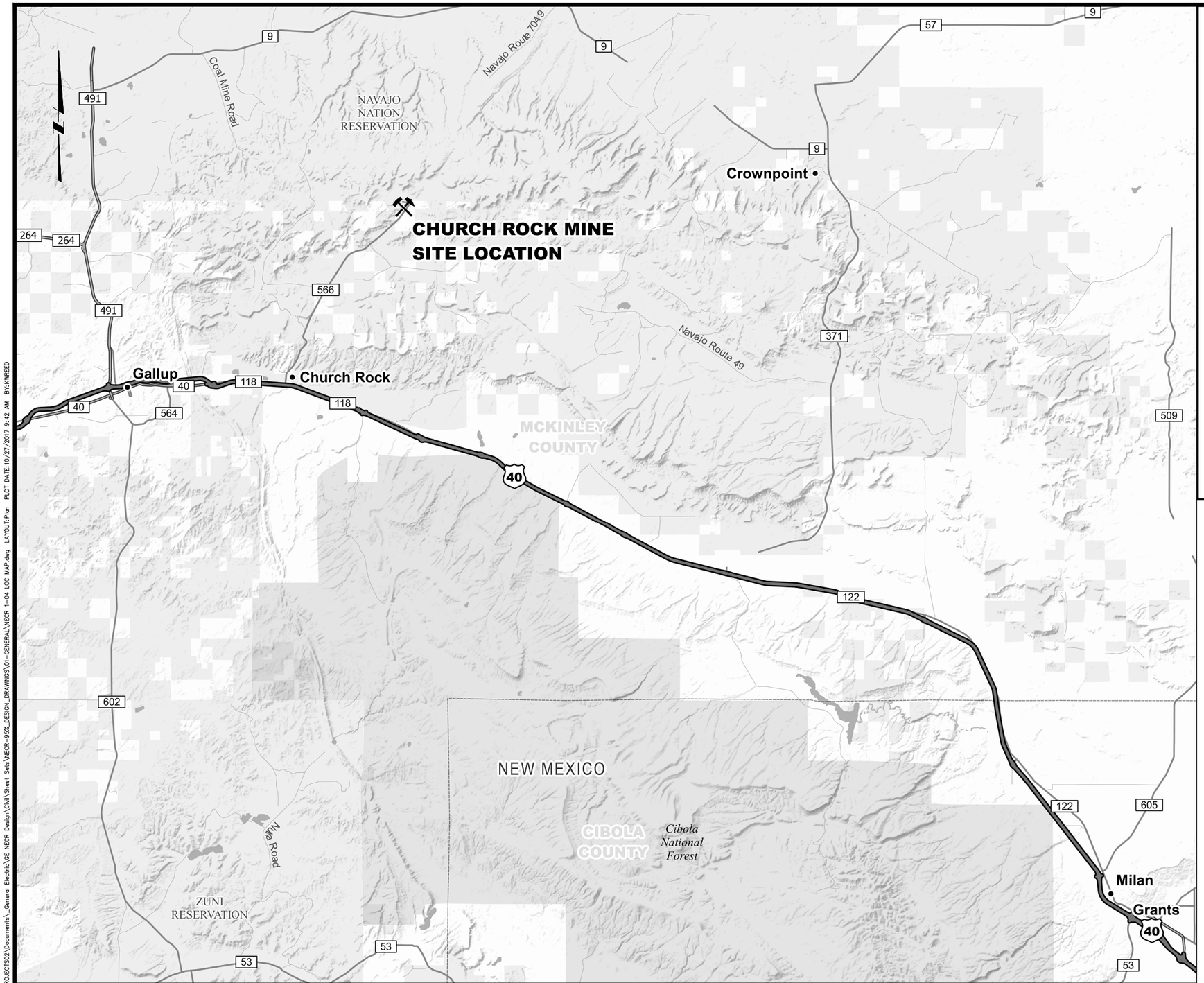
McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
GENERAL NOTES AND ACRONYMS

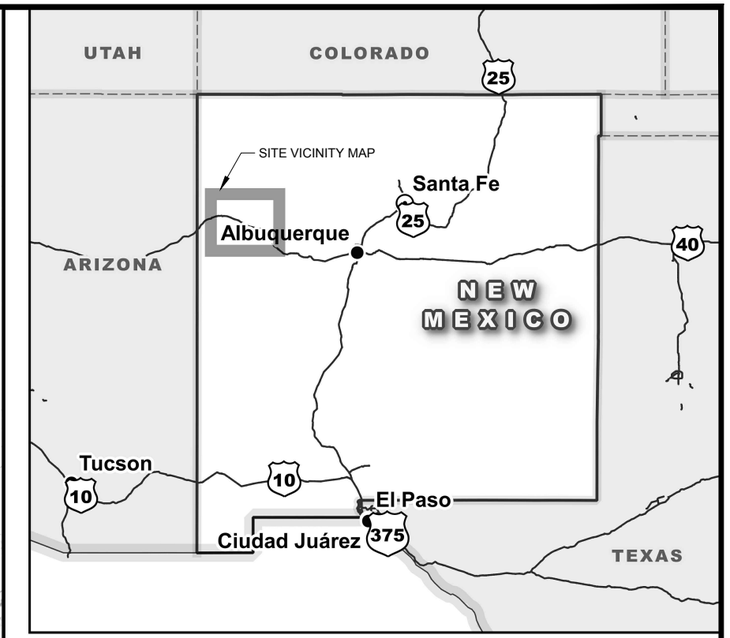
SHEET 1-03

233001048



SITE VICINITY MAP

5 0 5 Miles



SITE LOCATION MAP

100 0 100 Miles

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McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
SITE LOCATION MAP

SHEET 1-04

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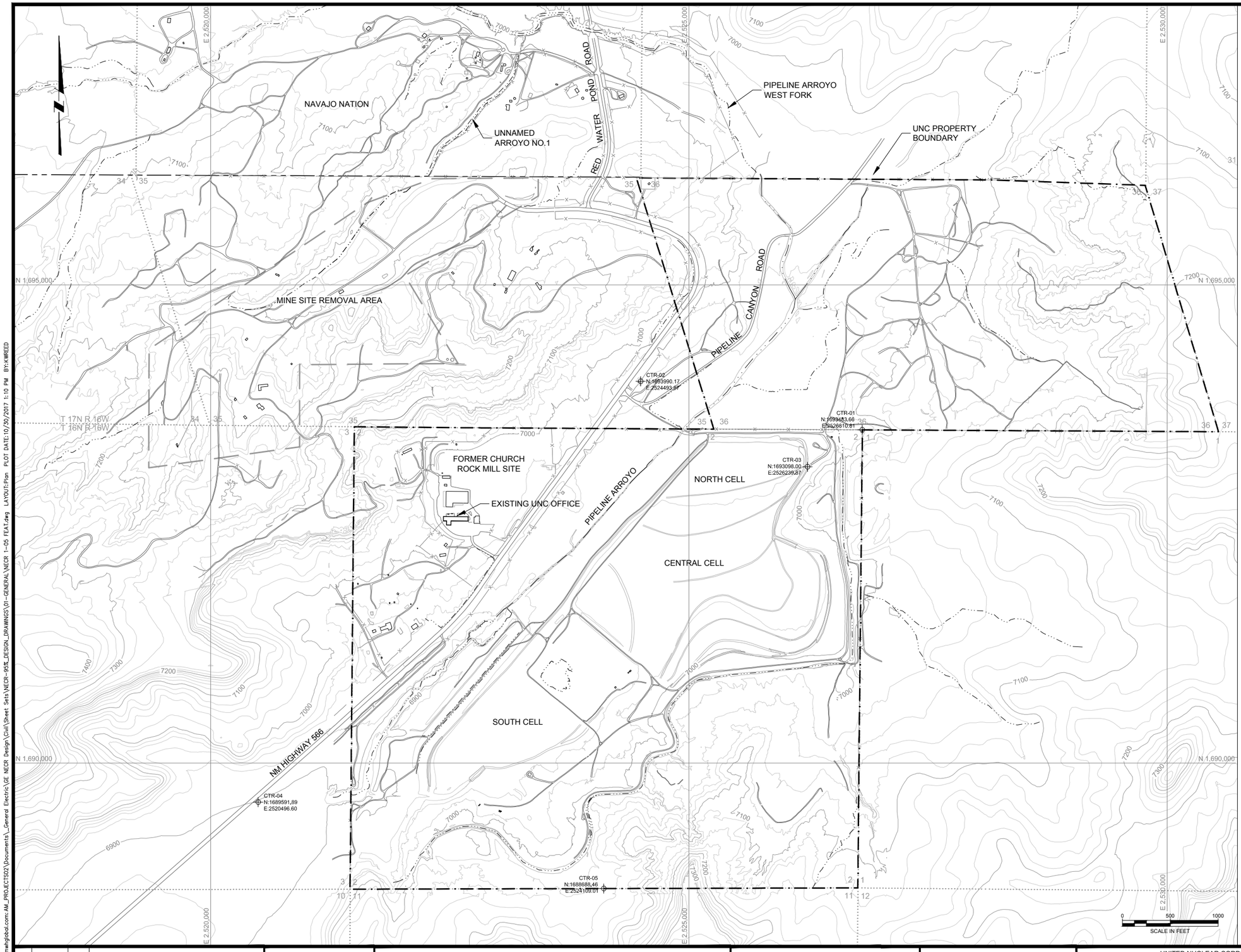

LEGEND:

- 7200 — EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- NECR MINE PERMIT BOUNDARY
- UNC PROPERTY BOUNDARY
- APPROXIMATE NAVAJO NATION BOUNDARY
- ROADS
- NATURAL DRAINAGE
- EXISTING FENCE
- SECTION LINE
- 36 — SECTION NUMBER
- SURVEY CONTROL POINTS

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McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
PRINCIPAL EXISTING CONDITION, SITE FEATURES, AND SURVEY CONTROL

SHEET 1-05

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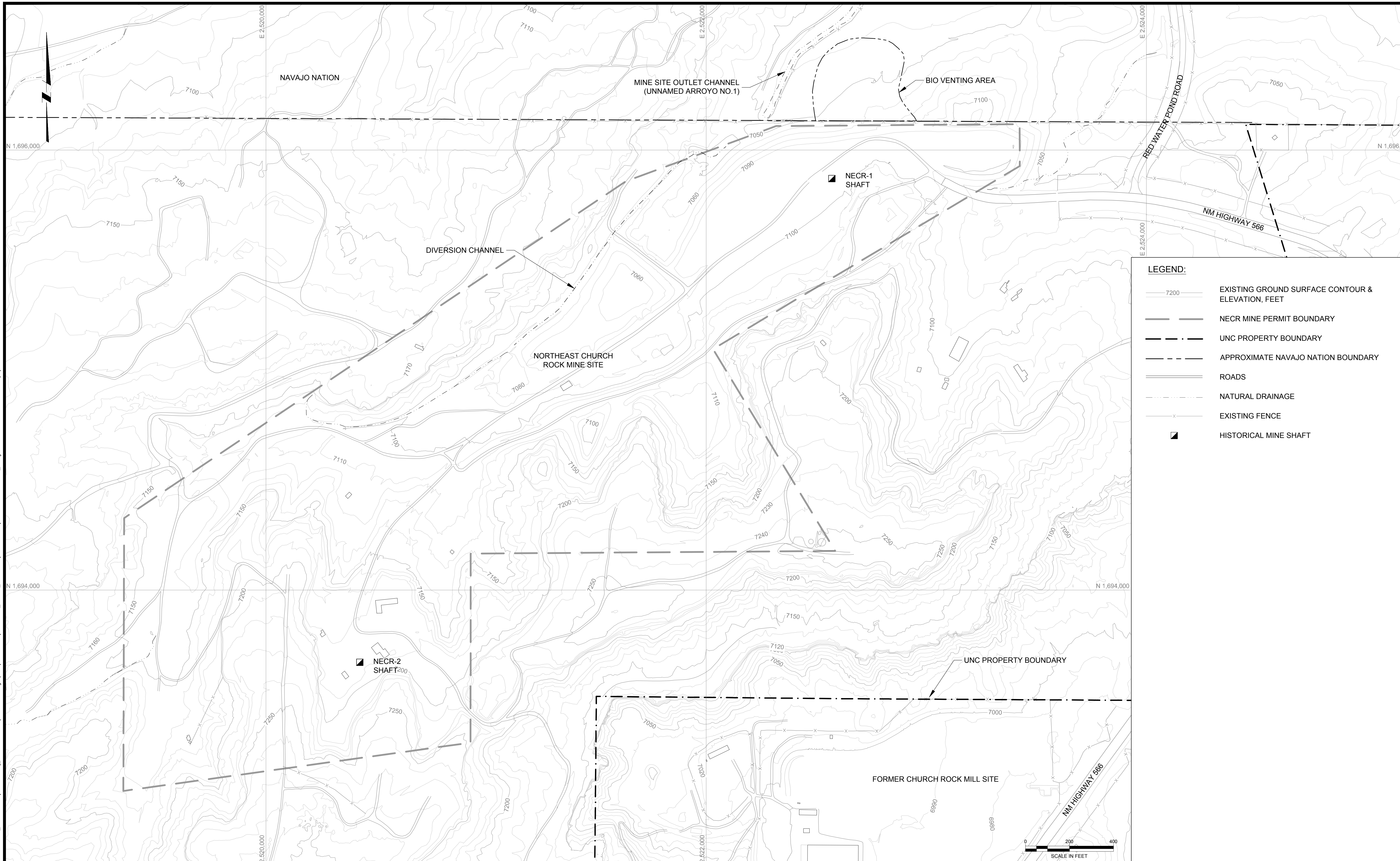

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McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
EXISTING CONDITION NECR MINE SITE

SHEET 1-06

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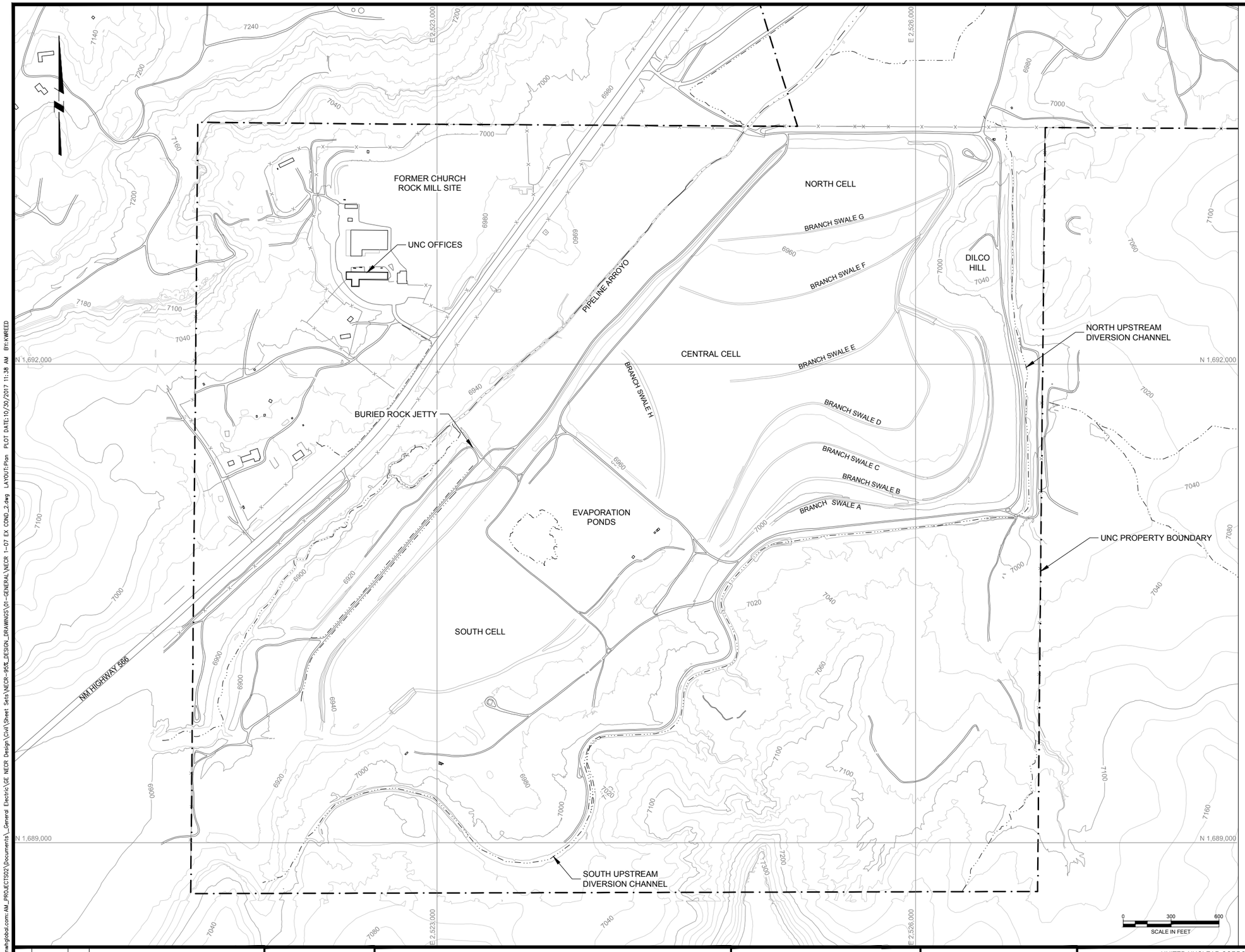

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McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
EXISTING CONDITION UNC SITE

SHEET
1-07
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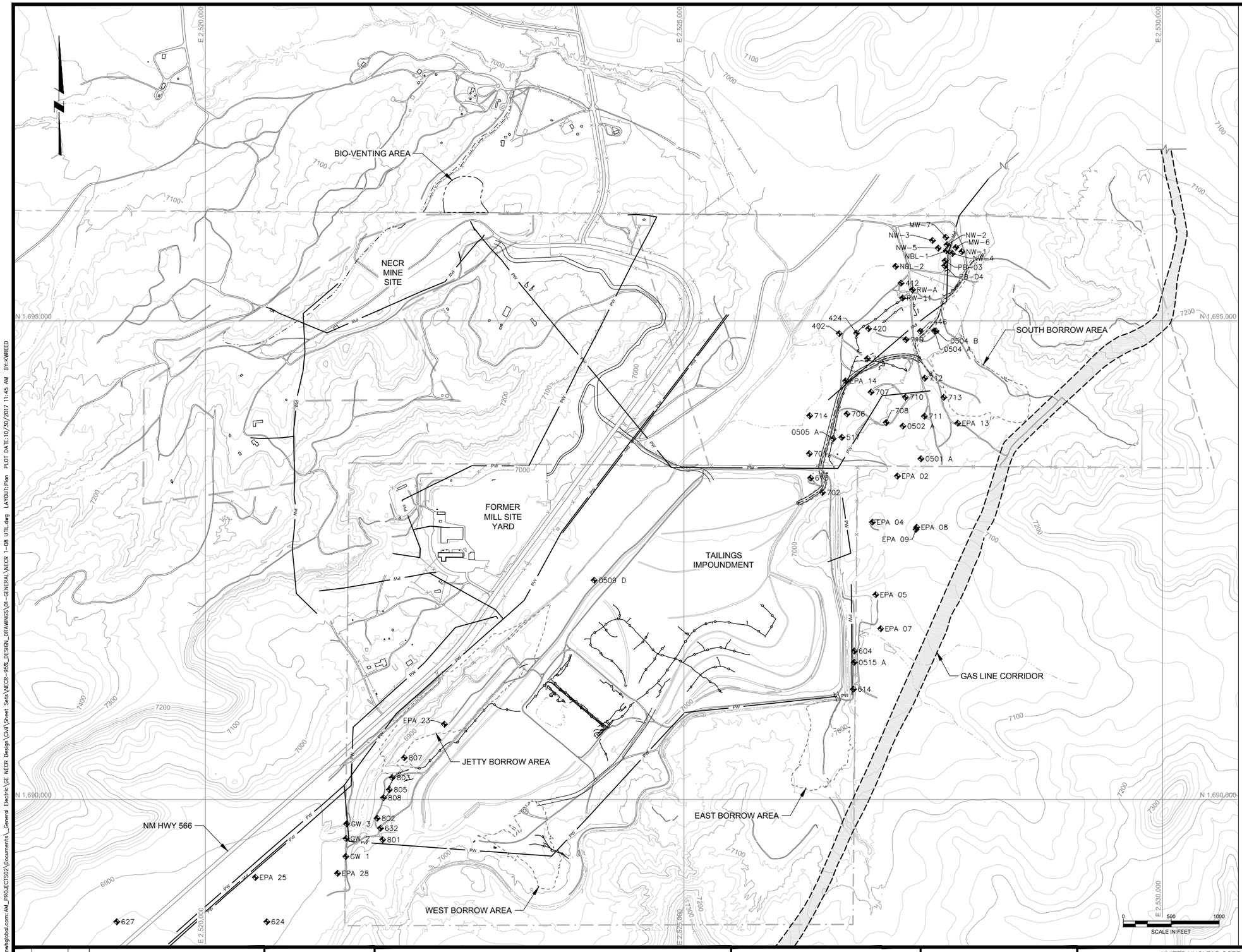

LEGEND:

- EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- NECR MINE PERMIT BOUNDARY
- UNC PROPERTY BOUNDARY
- APPROXIMATE NAVAJO NATION BOUNDARY
- ROADS
- NATURAL DRAINAGE
- EXISTING FENCE
- GAS LINE CORRIDOR
- POWER LINES
- PIPELINE
- MONITORING WELL

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McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
SITE UTILITIES

SHEET 1-08

233001048

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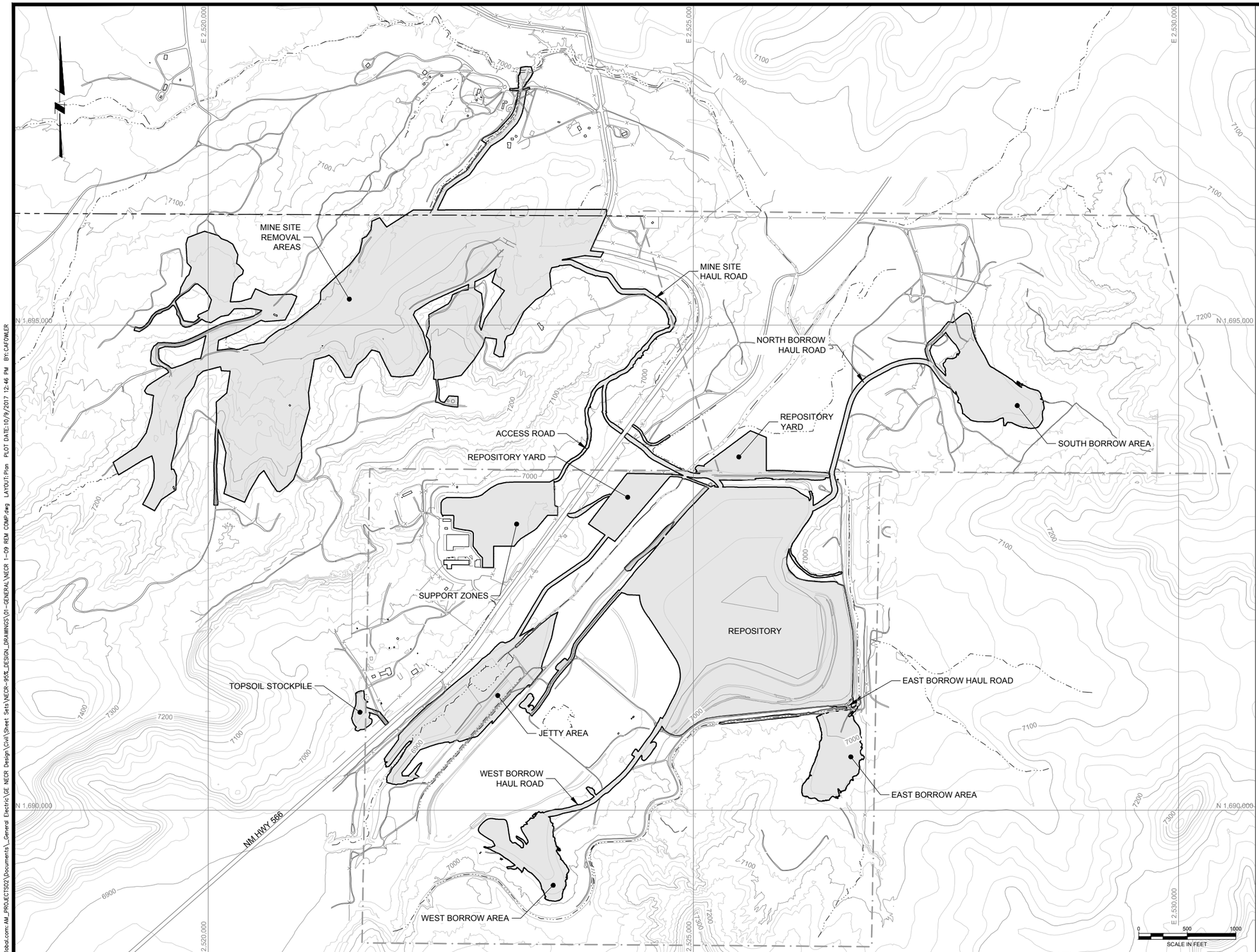

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- APPROXIMATE NAVAJO NATION BOUNDARY
- ROADS
- NATURAL DRAINAGE
- EXISTING FENCE
- PRINCIPAL COMPONENTS

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McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
PRINCIPAL COMPONENTS AND LIMITS OF DISTURBANCE

SHEET
1-09
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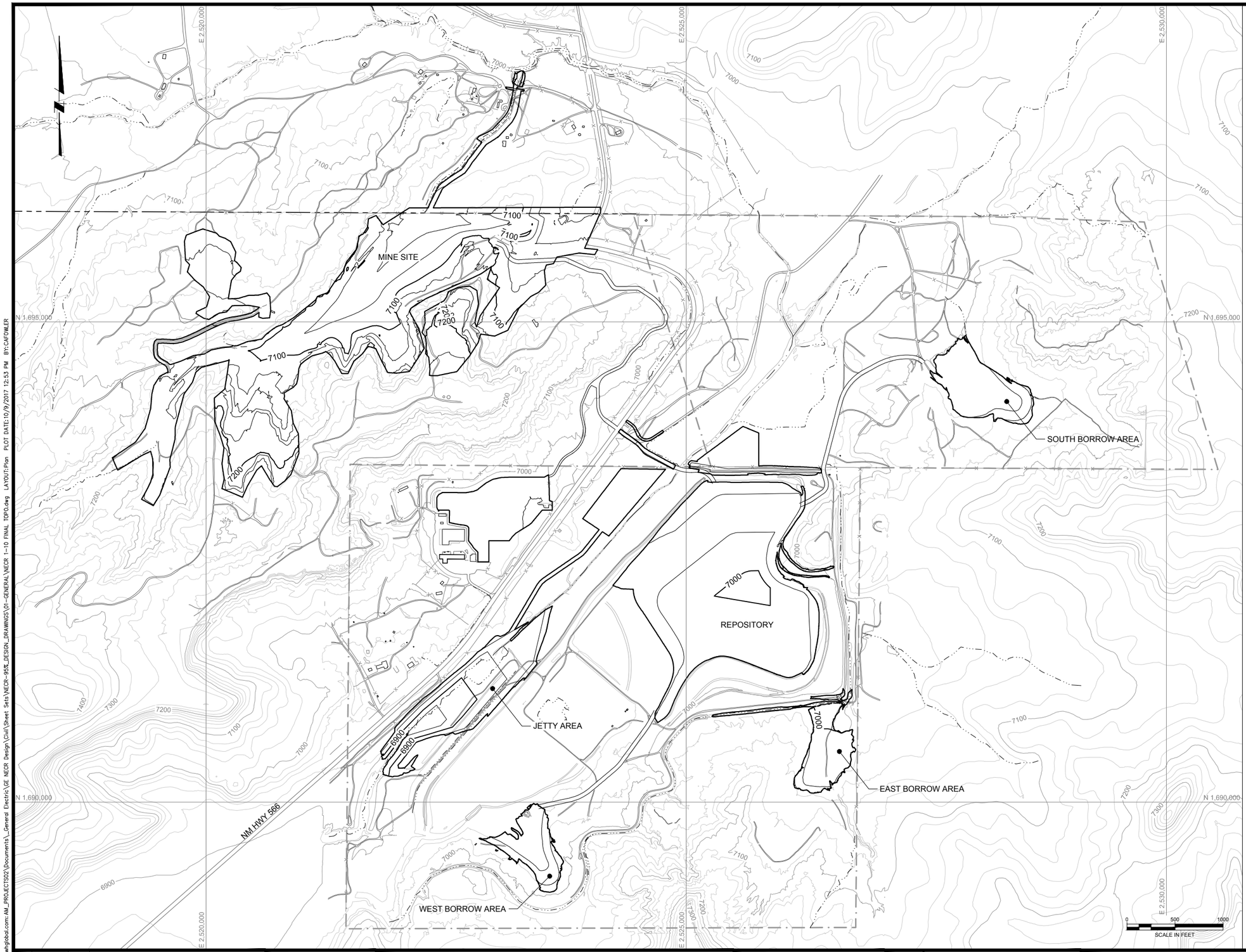

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- UNC PROPERTY BOUNDARY
- APPROXIMATE NAVAJO NATION BOUNDARY
- ROADS
- NATURAL DRAINAGE
- x — EXISTING FENCE

NOTE(S):

1. HAUL ROADS TO BE RECLAIMED FOLLOWING CONSTRUCTION.

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NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
FINAL RECLAIMED TOPOGRAPHY

SHEET
1-10
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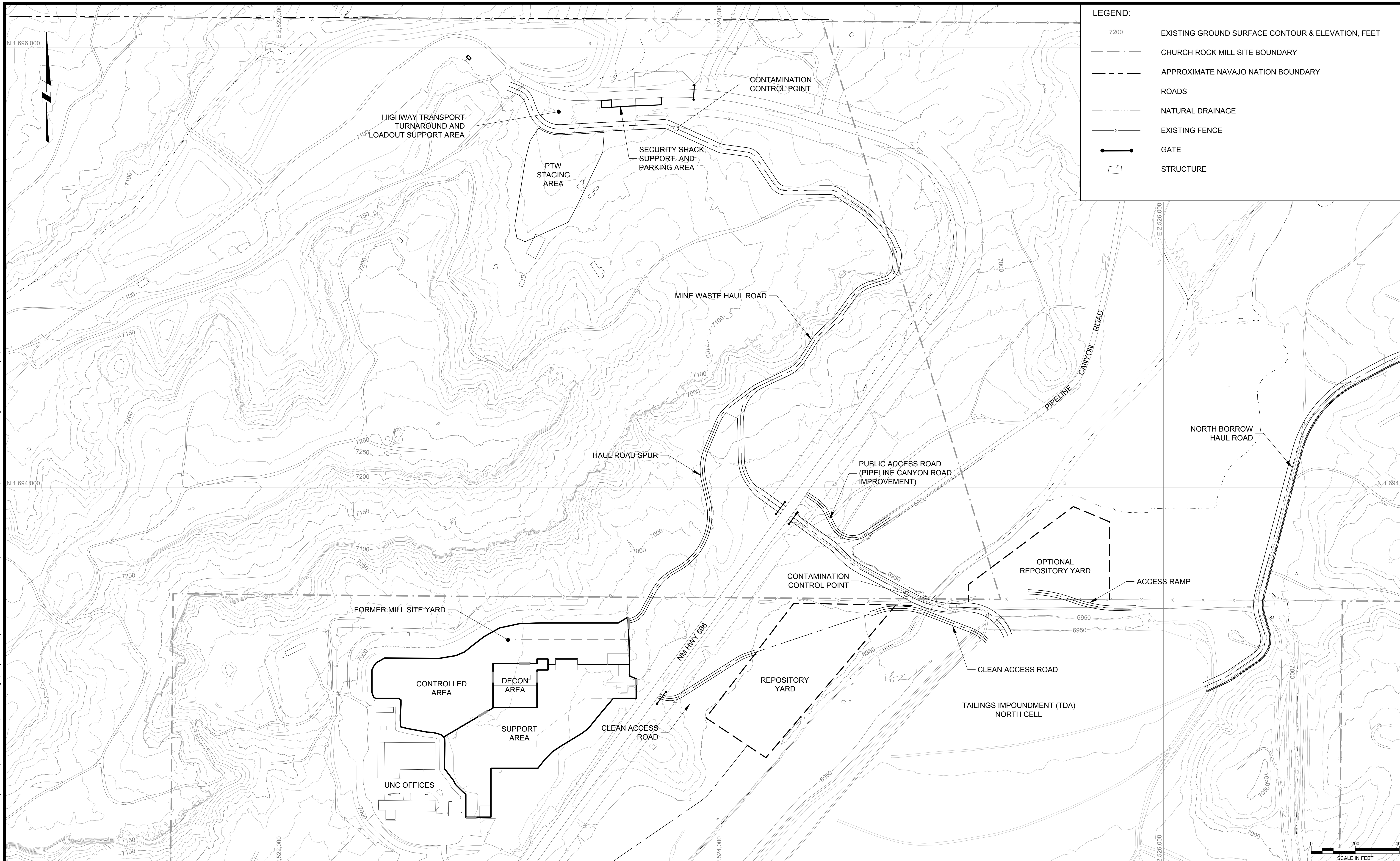

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NORTHEAST CHURCH ROCK PROJECT 95% DESIGN

EARLY WORKS AND CONSTRUCTION SUPPORT FACILITIES

SHEET 2-01

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ACCESS ROAD CENTERLINE

MILL WELL AND PUMP HOUSE

VEHICLE DECON AREA

YARD AND PARKING

FUEL FARM

WATER STORAGE

SECURITY SHACK

PULL OUT

CLEAN STORMWATER DIVERSION DITCH

DECON SHACK

CONSTRUCTION EQUIPMENT ENTRANCE AND EXIT

FORMER MILL SITE YARD

1
2-05
DECON PAD

CREW SCAN

CREW LUNCH ROOM

TRUCK SCALE

ACCESS ROAD

REPOSITORY YARD

PRIMARY ENTRANCE

SUPPORT AREA

CONTRACTOR YARD

PARKING

CONSTRUCTION OFFICES

SITE BOUNDARY

SECURITY SHACK

UNC OFFICES

NM HWY 566

CONSTRUCTION ENTRANCE

CONSTRUCTION CREW AND VISITOR ENTRANCE / EXIT

E 2,522,400

E 2,523,200

E 2,524,000

N 1,692,800

CONTROLLED AREA

DECON AREA

SUPPORT AREA

KEY
NOT TO SCALE

LEGEND:

- 7200 — EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- CHURCH ROCK MILL SITE BOUNDARY
- ROADS
- NATURAL DRAINAGE
- EXISTING FENCE
- FENCE
- STRUCTURE
- LOCATION GATE
- GATE
- S12 — STORMWATER POND
- GRAVEL SURFACING
- PW — OVERHEAD ELECTRIC

0 80 160
SCALE IN FEET

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FORMER MILL SITE YARD

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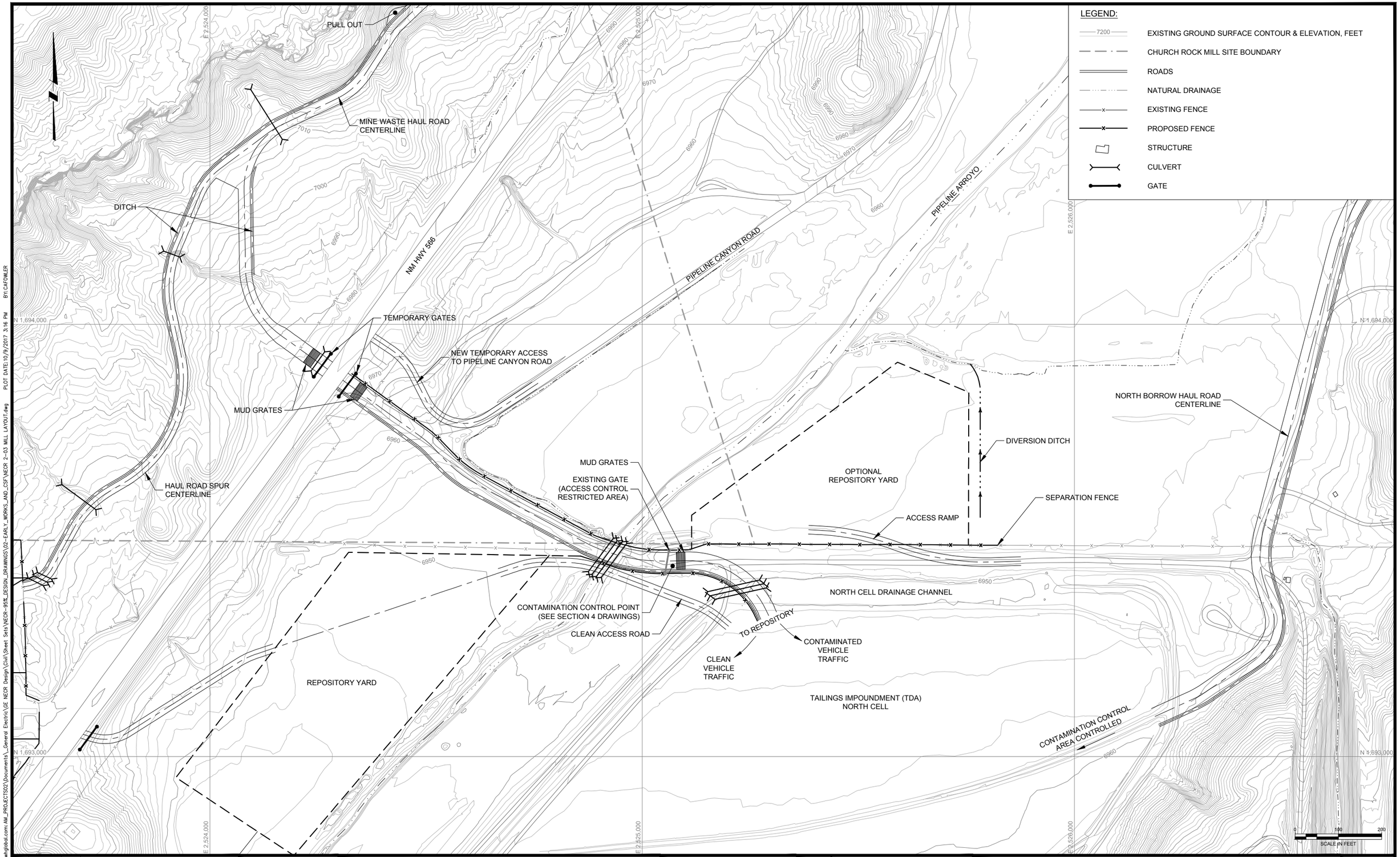
2-02
233001048

p:\\amerypwin103.mwhglobal.com:AM_PROJECTS92\Documents_General Electric\GE NECR Design\Civil\Sheet Sets\NECR-95%_DESIGN_DRAWINGS\02-EARLY_WORKS_AND_CSF\NECR 2-02 SUPPORT ZONE LAYOUT.dwg PLOT DATE:10/30/2017 11:13 AM BY:KWREED



REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

DESIGNED K REED
CHECKED J COLEMAN
APPROVED J CUMBERS

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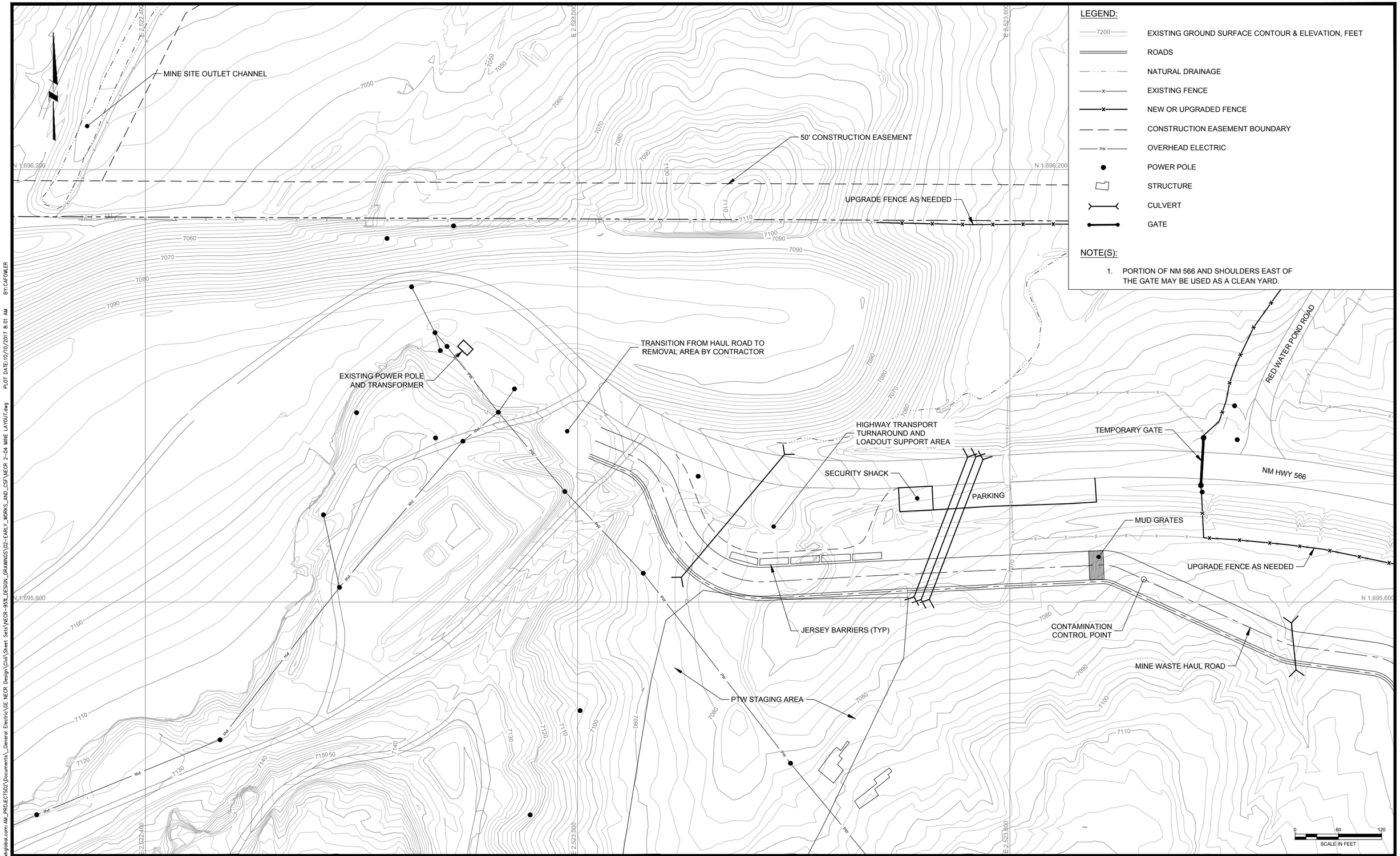
UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
REPOSITORY YARDS

SHEET
2-03
233001048



REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

DESIGNED K REED
CHECKED J COLEMAN
APPROVED J CUMBERS

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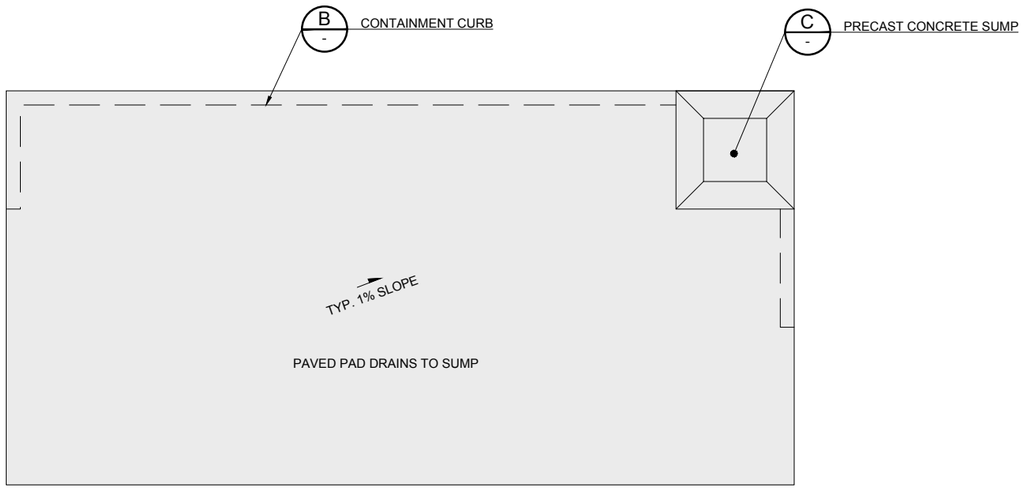
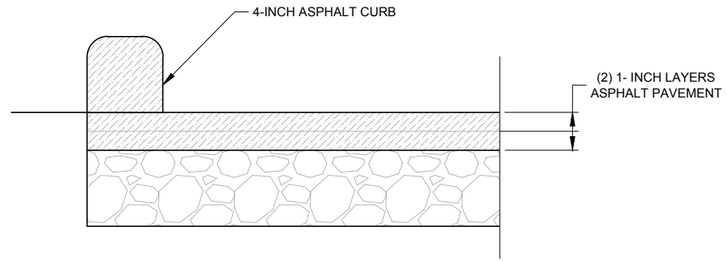
UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MINE SITE YARD

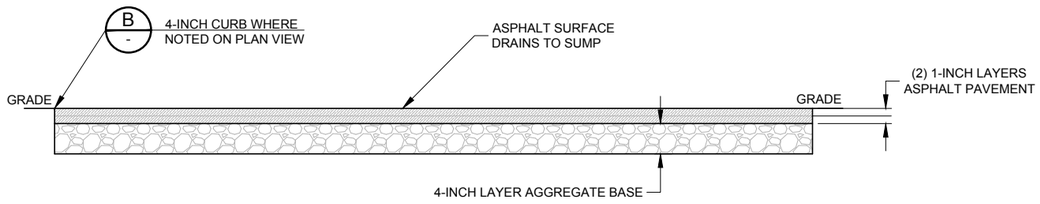
SHEET
2-04
233001048



1 / 2-05 ASPHALT DECON PAD DETAIL - PLAN VIEW
NOT TO SCALE



B / - CURB DETAIL
NOT TO SCALE



A / - DECON PAD DETAIL
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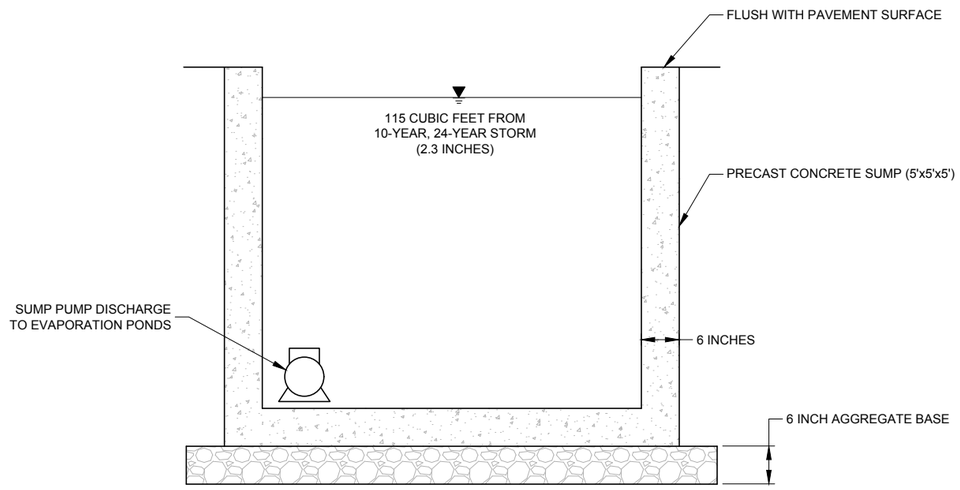

C / - PRECAST CONCRETE SUMP
NOT TO SCALE

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

DESIGNED K REED
CHECKED J COLEMAN
APPROVED J CUMBERS

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UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
DETAILS

SHEET
2-05
233001048

NAVAJO NATION BOUNDARY

MINE SITE OUTLET CHANNEL

BIO-VENTING AREA

NECR-1 SHAFT

NECR-1

VENT HOLE 8

VENT HOLE 3

POND 3

TPH STOCK PILE

POND 1

POND 2

SANDFILL NO. 1

SANDFILL NO. 3

BONEYARD

NECR-2

NECR-2 SHAFT

E 2,520,000

E 2,522,000

E 2,524,000

N 1,696,000

N 1,694,000

LEGEND:

- 7200 — EXISTING GROUND SURFACE ELEVATION CONTOUR, FEET
- 7200 — EXISTING GROUND SURFACE ELEVATION CONTOUR, FEET (REMOVAL AREA)
- NAVAJO NATION BOUNDARY
- CHURCH ROCK MILL SITE BOUNDARY
- EXISTING STORMWATER CHANNELS
- HISTORICAL MINE SHAFT

0 200 400

SCALE IN FEET

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

DESIGNED K REED

CHECKED M WITLER

APPROVED J CUMBERS

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GE

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE

McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN

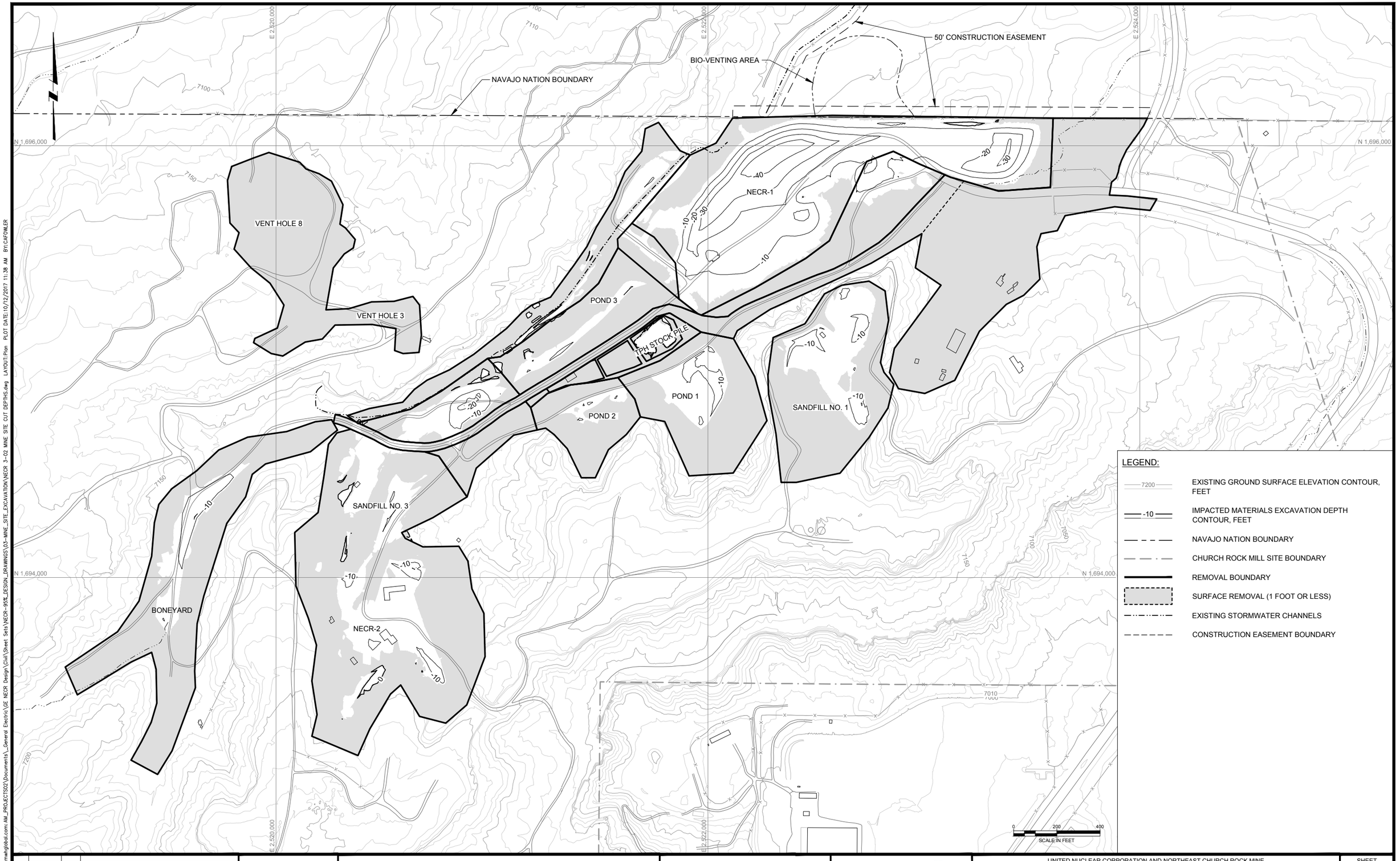
MINE SITE REMOVAL EXCAVATIONS AND DEMOLITION

EXISTING CONDITION

SHEET

3-01

233001048



REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

DESIGNED K REED
CHECKED M WITLER
APPROVED J CUMBERS

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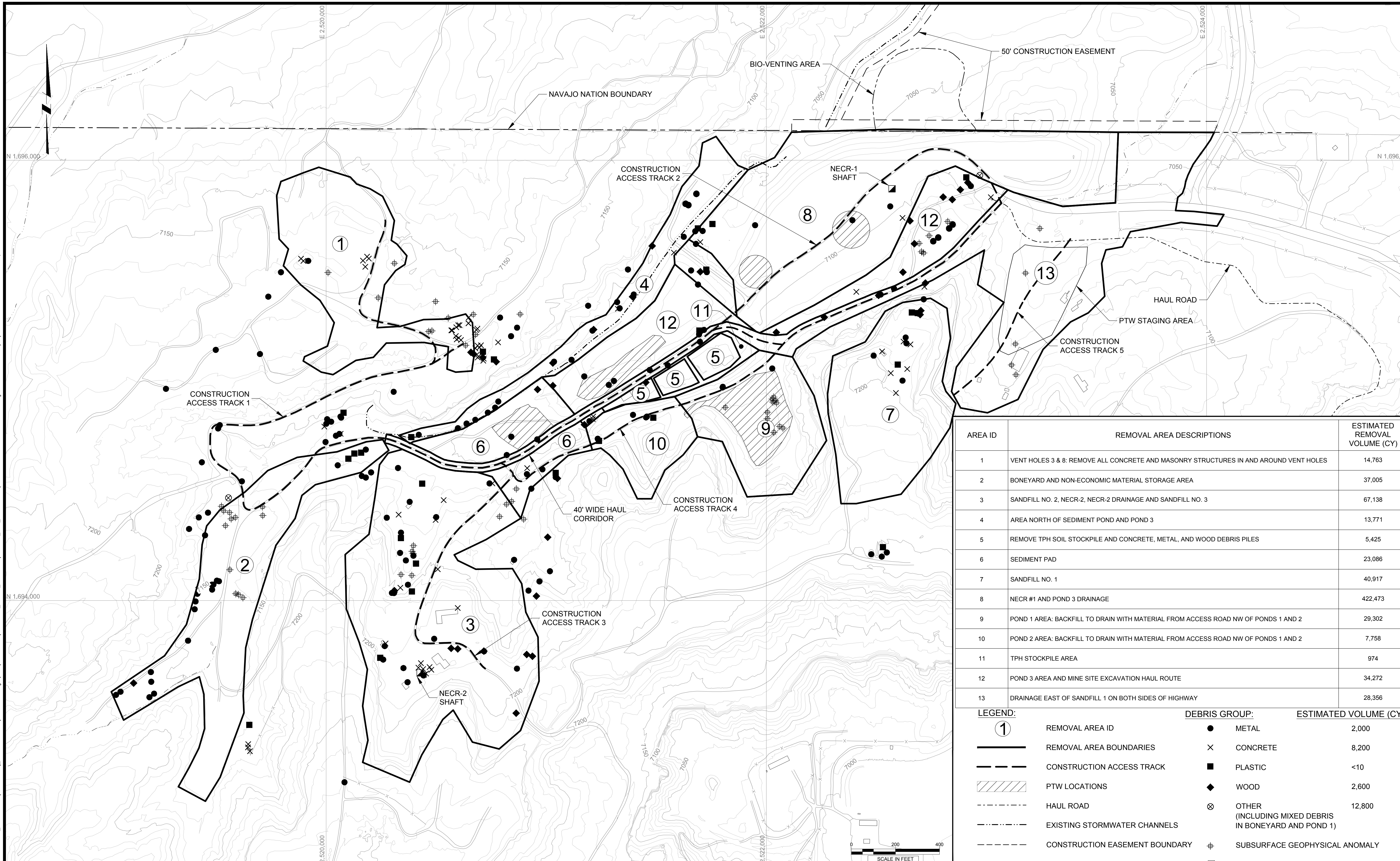
UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO
NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MINE SITE REMOVAL EXCAVATIONS AND DEMOLITION
IMPACTED MATERIAL EXCAVATION DEPTHS - EXISTING GROUND TO NEAT LINE

SHEET
3-02
233001048



AREA ID	REMOVAL AREA DESCRIPTIONS	ESTIMATED REMOVAL VOLUME (CY)
1	VENT HOLES 3 & 8: REMOVE ALL CONCRETE AND MASONRY STRUCTURES IN AND AROUND VENT HOLES	14,763
2	BONEYARD AND NON-ECONOMIC MATERIAL STORAGE AREA	37,005
3	SANDFILL NO. 2, NECR-2, NECR-2 DRAINAGE AND SANDFILL NO. 3	67,138
4	AREA NORTH OF SEDIMENT POND AND POND 3	13,771
5	REMOVE TPH SOIL STOCKPILE AND CONCRETE, METAL, AND WOOD DEBRIS PILES	5,425
6	SEDIMENT PAD	23,086
7	SANDFILL NO. 1	40,917
8	NECR #1 AND POND 3 DRAINAGE	422,473
9	POND 1 AREA: BACKFILL TO DRAIN WITH MATERIAL FROM ACCESS ROAD NW OF PONDS 1 AND 2	29,302
10	POND 2 AREA: BACKFILL TO DRAIN WITH MATERIAL FROM ACCESS ROAD NW OF PONDS 1 AND 2	7,758
11	TPH STOCKPILE AREA	974
12	POND 3 AREA AND MINE SITE EXCAVATION HAUL ROUTE	34,272
13	DRAINAGE EAST OF SANDFILL 1 ON BOTH SIDES OF HIGHWAY	28,356

LEGEND:

Symbol	Description
(1)	REMOVAL AREA ID
solid line	REMOVAL AREA BOUNDARIES
long dashed line	CONSTRUCTION ACCESS TRACK
hatching	PTW LOCATIONS
dash-dot line	HAUL ROAD
dash-dot-dot line	EXISTING STORMWATER CHANNELS
dashed line	CONSTRUCTION EASEMENT BOUNDARY
dashed line	NAVAJO NATION BOUNDARY

DEBRIS GROUP:	ESTIMATED VOLUME (CY):
● METAL	2,000
× CONCRETE	8,200
■ PLASTIC	<10
◆ WOOD	2,600
⊗ OTHER (INCLUDING MIXED DEBRIS IN BONEYARD AND POND 1)	12,800
SUBSURFACE GEOPHYSICAL ANOMALY	
HISTORICAL SHAFT	

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

DESIGNED K REED
CHECKED M WITLER
APPROVED J CUMBERS

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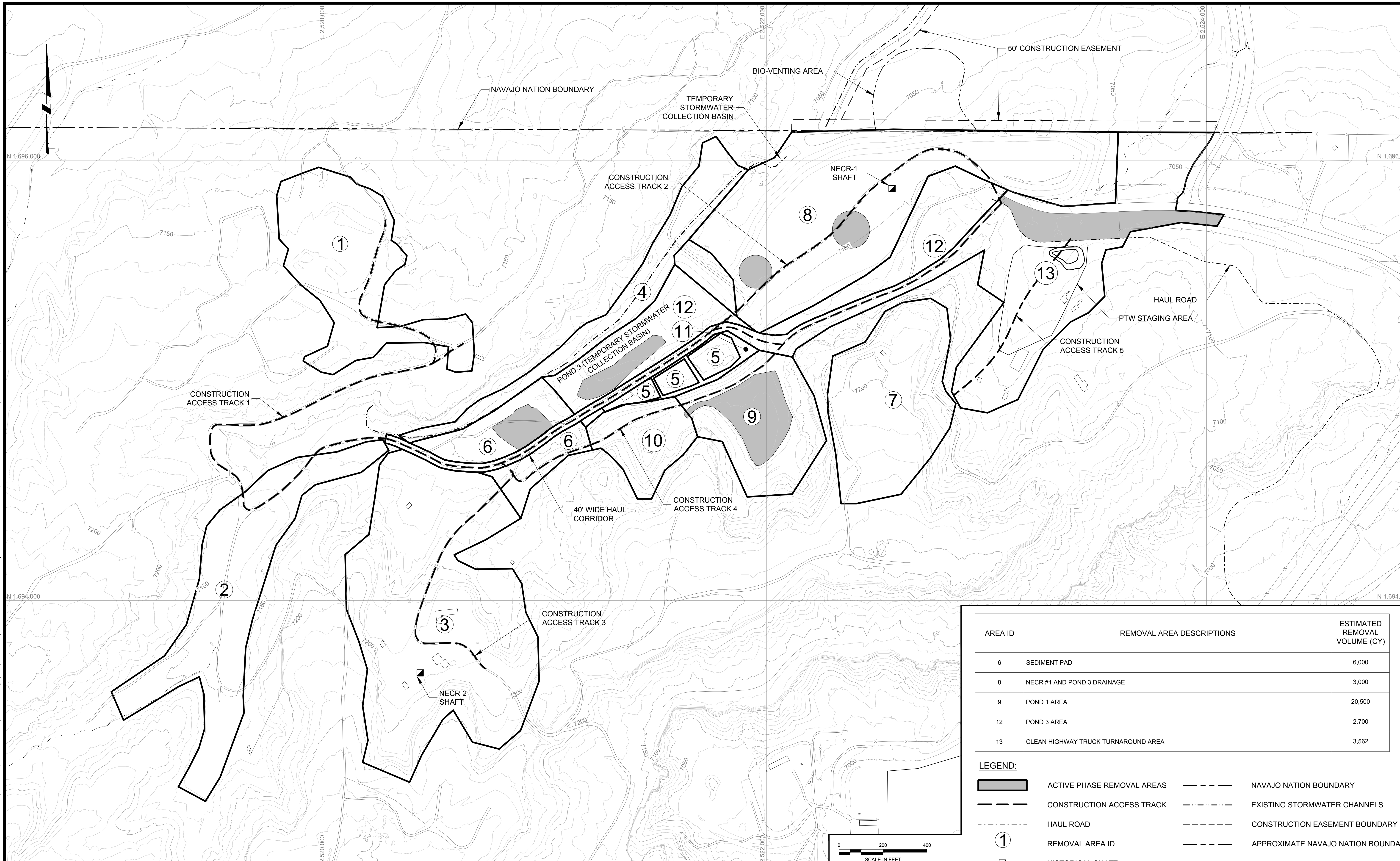
UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO
NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MINE SITE REMOVAL EXCAVATIONS AND DEMOLITION
REMOVAL AREAS AND DEBRIS MAP

SHEET 3-03

233001048

PLOT DATE:10/12/2017 11:12 AM BY:FOWLER, CAMILLE

pw:\\amerpwint03.mwhglobal.com:AM_PROJECTS02\Documents_General Electric\GE NECR Design\Civil\Sheet Sets\NECR~95%_DESIGN_DRAWINGS\03~MINE_SITE_EXCAVATION\NECR 3-03 PHASE RMDA AREAS.dwg



AREA ID	REMOVAL AREA DESCRIPTIONS	ESTIMATED REMOVAL VOLUME (CY)
6	SEDIMENT PAD	6,000
8	NECR #1 AND POND 3 DRAINAGE	3,000
9	POND 1 AREA	20,500
12	POND 3 AREA	2,700
13	CLEAN HIGHWAY TRUCK TURNAROUND AREA	3,562

LEGEND:

- ACTIVE PHASE REMOVAL AREAS
- CONSTRUCTION ACCESS TRACK
- HAUL ROAD
- REMOVAL AREA ID
- HISTORICAL SHAFT
- NAVAJO NATION BOUNDARY
- EXISTING STORMWATER CHANNELS
- CONSTRUCTION EASEMENT BOUNDARY
- APPROXIMATE NAVAJO NATION BOUNDARY

0 200 400
SCALE IN FEET

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

DESIGNED K REED
CHECKED M WITLER
APPROVED J CUMBERS

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UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO
NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MINE SITE REMOVAL EXCAVATIONS AND DEMOLITION
PHASE 1 REMOVAL AREAS - PRINCIPAL THREAT WASTE

SHEET
3-04
233001048

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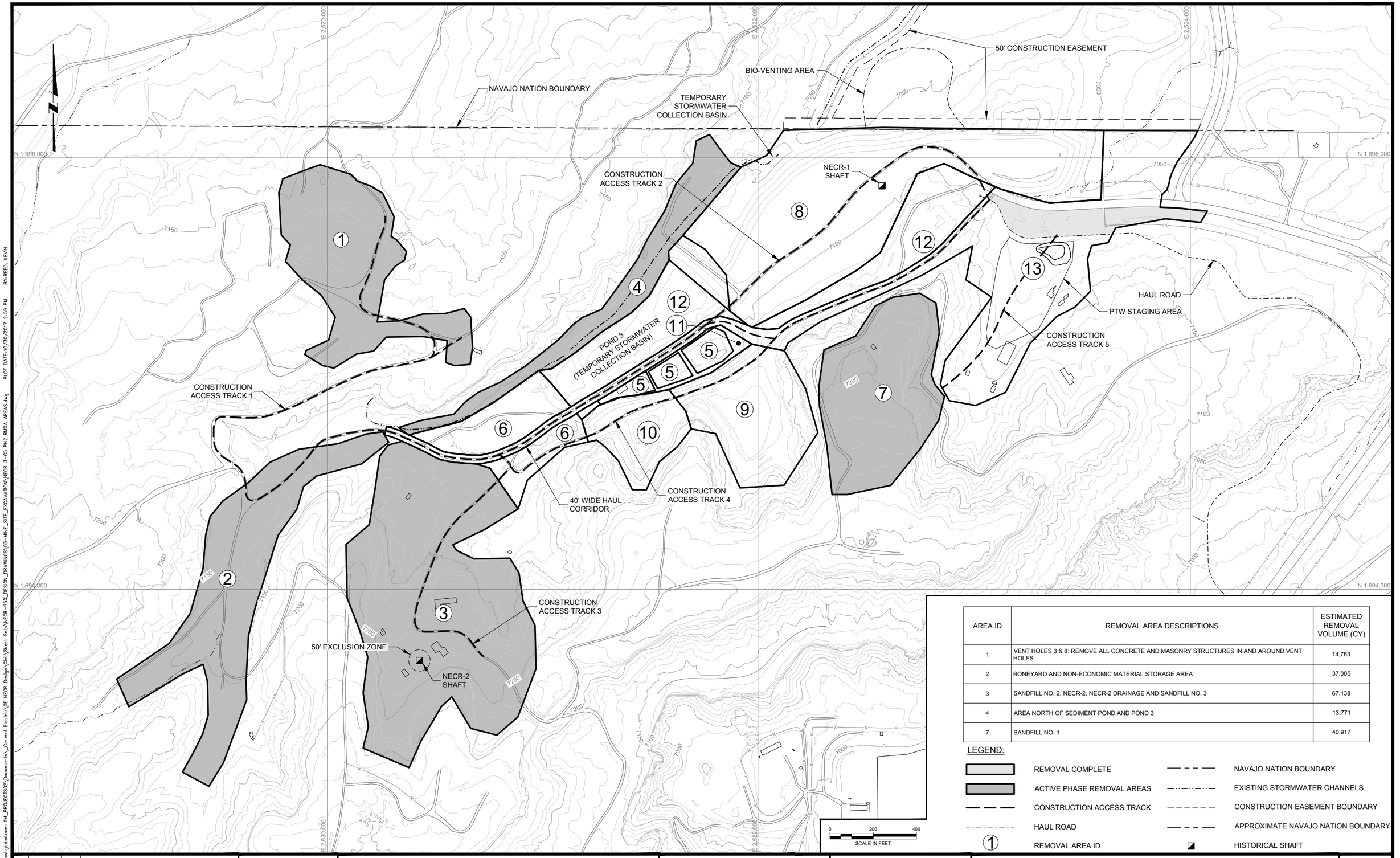

AREA ID	REMOVAL AREA DESCRIPTIONS	ESTIMATED REMOVAL VOLUME (CY)
1	VENT HOLES 3 & 8: REMOVE ALL CONCRETE AND MASONRY STRUCTURES IN AND AROUND VENT HOLES	14,763
2	BONEYARD AND NON-ECONOMIC MATERIAL STORAGE AREA	37,005
3	SANDFILL NO. 2, NECR-2, NECR-2 DRAINAGE AND SANDFILL NO. 3	67,138
4	AREA NORTH OF SEDIMENT POND AND POND 3	13,771
7	SANDFILL NO. 1	40,917

LEGEND:

- REMOVAL COMPLETE
- ACTIVE PHASE REMOVAL AREAS
- CONSTRUCTION ACCESS TRACK
- HAUL ROAD
- (1) REMOVAL AREA ID
- NAVAJO NATION BOUNDARY
- EXISTING STORMWATER CHANNELS
- CONSTRUCTION EASEMENT BOUNDARY
- APPROXIMATE NAVAJO NATION BOUNDARY
- HISTORICAL SHAFT

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

DESIGNED K REED
CHECKED M WITLER
APPROVED J CUMBERS

MWH. now part of Stantec

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO
NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MINE SITE REMOVAL EXCAVATIONS AND DEMOLITION
PHASE 2 REMOVAL AREAS

SHEET 3-05

233001048

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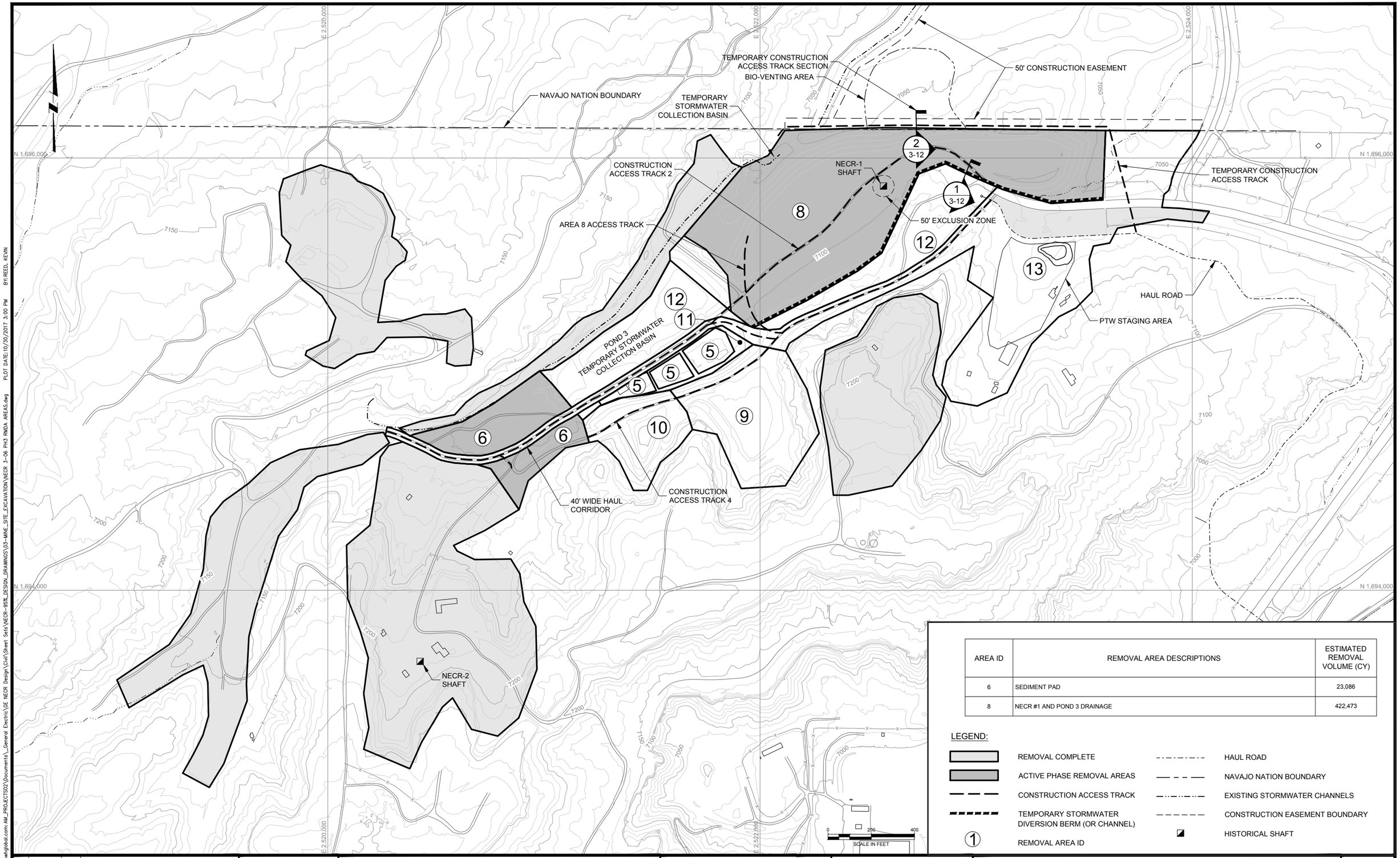

AREA ID	REMOVAL AREA DESCRIPTIONS	ESTIMATED REMOVAL VOLUME (CY)
6	SEDIMENT PAD	23,086
8	NECR #1 AND POND 3 DRAINAGE	422,473

LEGEND:

- REMOVAL COMPLETE
- ACTIVE PHASE REMOVAL AREAS
- CONSTRUCTION ACCESS TRACK
- TEMPORARY STORMWATER DIVERSION BERM (OR CHANNEL)
- ① REMOVAL AREA ID
- HAUL ROAD
- NAVAJO NATION BOUNDARY
- EXISTING STORMWATER CHANNELS
- CONSTRUCTION EASEMENT BOUNDARY
- HISTORICAL SHAFT

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

DESIGNED K REED
CHECKED M WITLER
APPROVED J CUMBERS

MWH. now part of Stantec

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO
NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MINE SITE REMOVAL EXCAVATIONS AND DEMOLITION
PHASE 3 REMOVAL AREAS

SHEET 3-06

233001048

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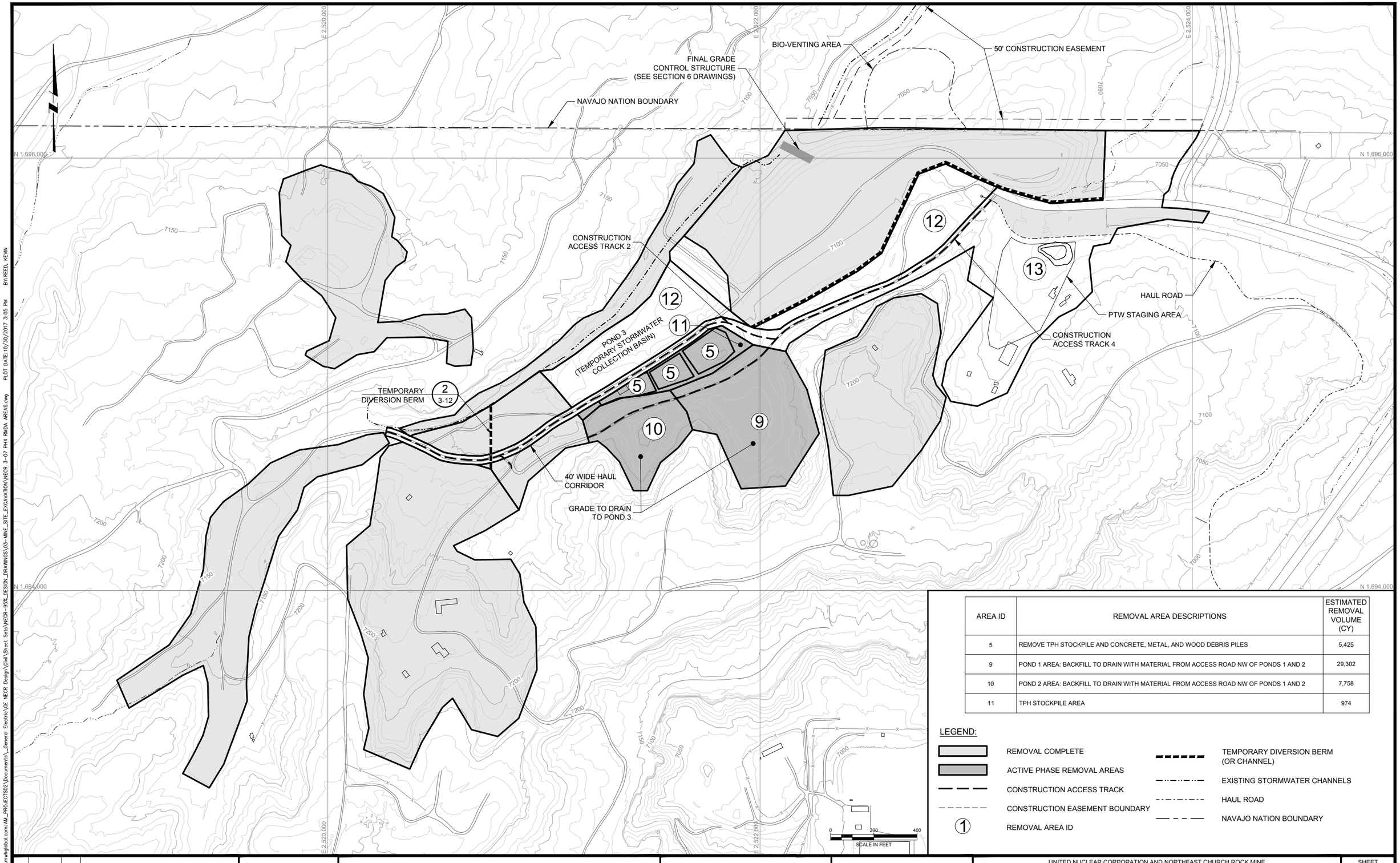


AREA ID	REMOVAL AREA DESCRIPTIONS	ESTIMATED REMOVAL VOLUME (CY)
5	REMOVE TPH STOCKPILE AND CONCRETE, METAL, AND WOOD DEBRIS PILES	5,425
9	POND 1 AREA: BACKFILL TO DRAIN WITH MATERIAL FROM ACCESS ROAD NW OF PONDS 1 AND 2	29,302
10	POND 2 AREA: BACKFILL TO DRAIN WITH MATERIAL FROM ACCESS ROAD NW OF PONDS 1 AND 2	7,758
11	TPH STOCKPILE AREA	974

LEGEND:

- REMOVAL COMPLETE
- ACTIVE PHASE REMOVAL AREAS
- CONSTRUCTION ACCESS TRACK
- CONSTRUCTION EASEMENT BOUNDARY
- (1) REMOVAL AREA ID
- TEMPORARY DIVERSION BERM (OR CHANNEL)
- EXISTING STORMWATER CHANNELS
- HAUL ROAD
- NAVAJO NATION BOUNDARY

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

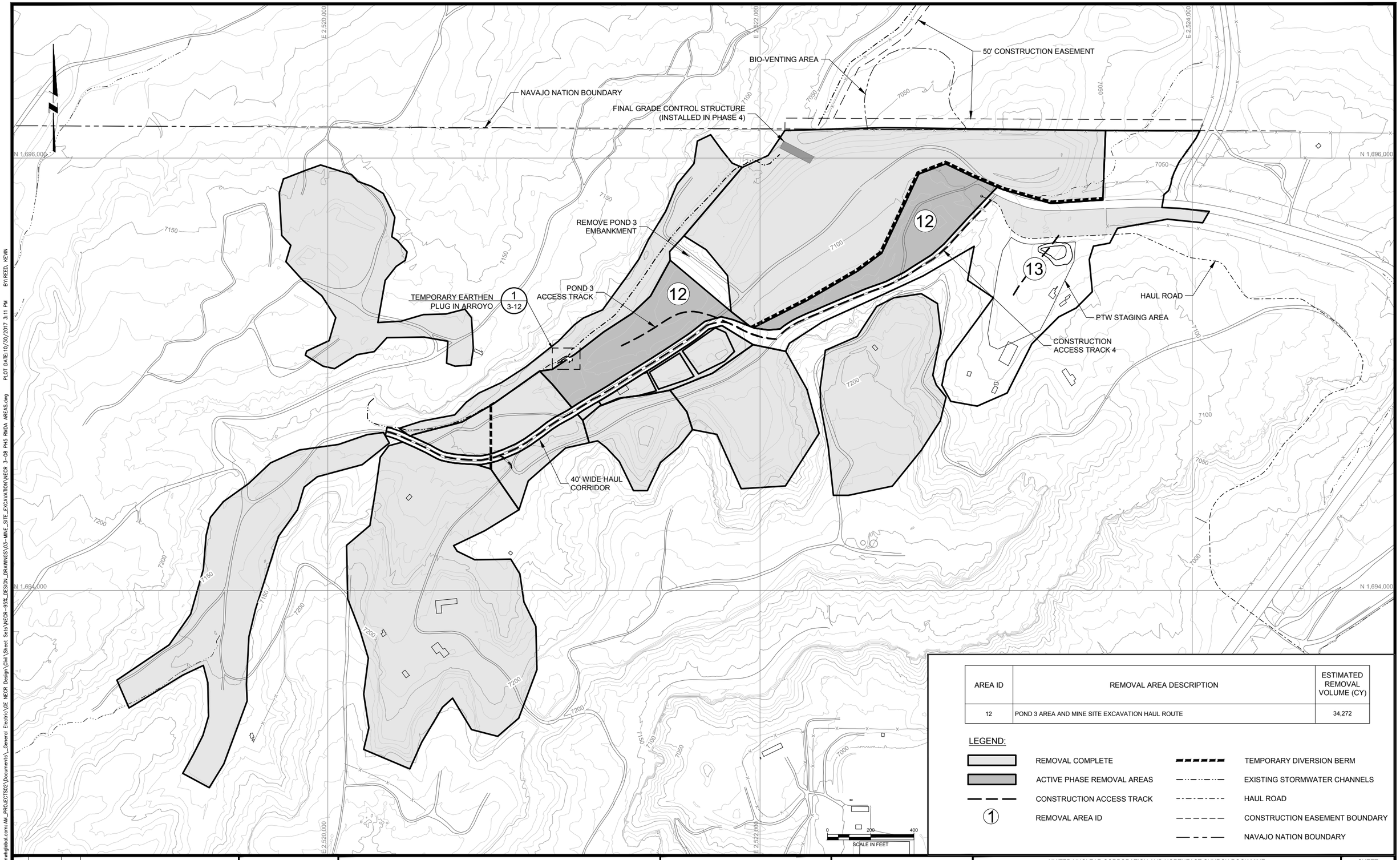
DESIGNED K REED
CHECKED M WITLER
APPROVED J CUMBERS

MWH. now part of Stantec

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO
NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MINE SITE REMOVAL EXCAVATIONS AND DEMOLITION
PHASE 4 REMOVAL AREAS

SHEET 3-07

233001048



AREA ID	REMOVAL AREA DESCRIPTION	ESTIMATED REMOVAL VOLUME (CY)
12	POND 3 AREA AND MINE SITE EXCAVATION HAUL ROUTE	34,272

LEGEND:

- REMOVAL COMPLETE
- ACTIVE PHASE REMOVAL AREAS
- CONSTRUCTION ACCESS TRACK
- (1) REMOVAL AREA ID
- TEMPORARY DIVERSION BERM
- EXISTING STORMWATER CHANNELS
- HAUL ROAD
- CONSTRUCTION EASEMENT BOUNDARY
- NAVAJO NATION BOUNDARY

REV	DATE	BY	DESCRIPTION
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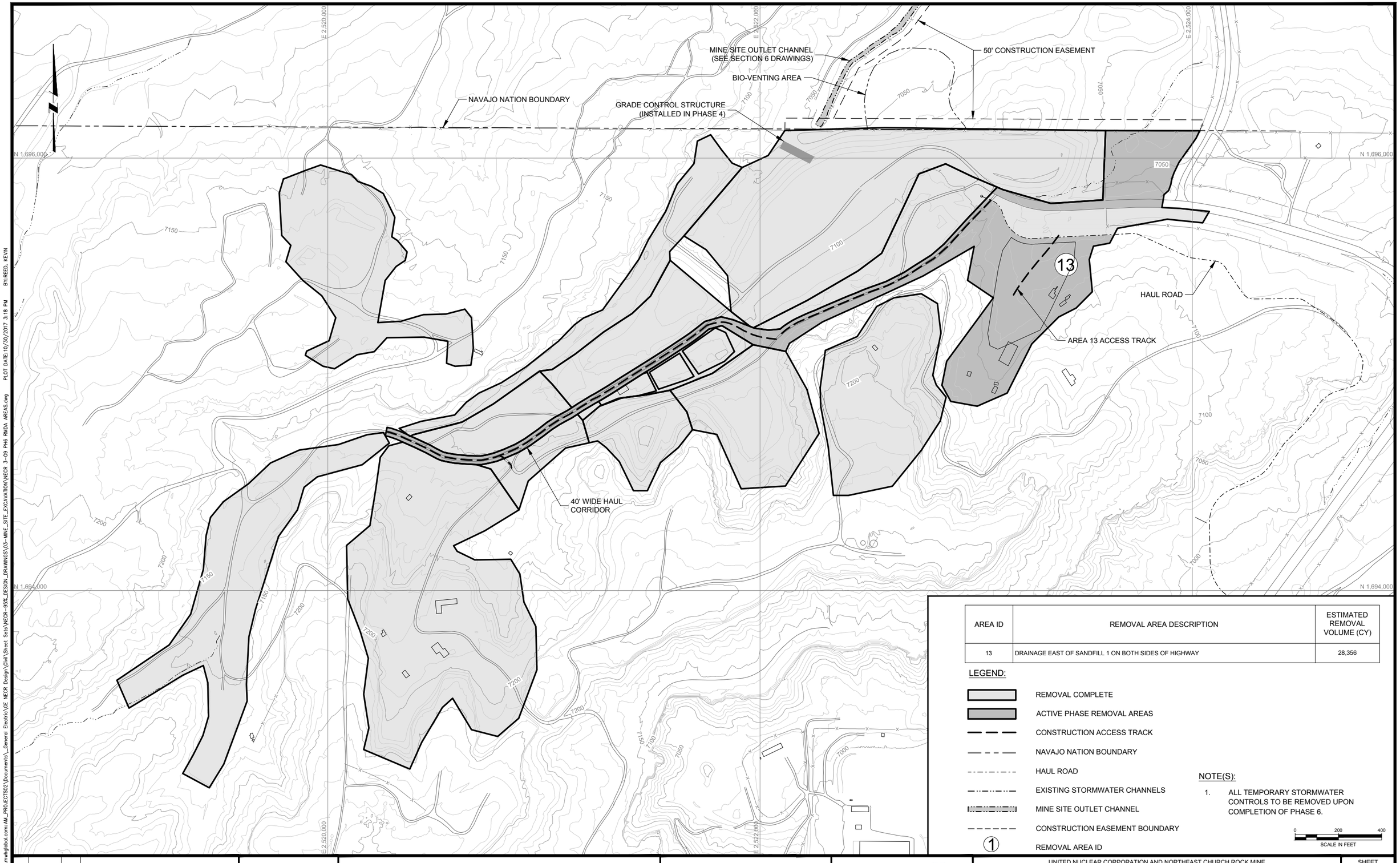
A	07/15/16	KR	ISSUED FOR 30% DESIGN

DESIGNED K REED
CHECKED M WITLER
APPROVED J CUMBERS

MWH. now part of Stantec

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO
NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MINE SITE REMOVAL EXCAVATIONS AND DEMOLITION
PHASE 5 REMOVAL AREAS

SHEET
3-08
233001048



AREA ID	REMOVAL AREA DESCRIPTION	ESTIMATED REMOVAL VOLUME (CY)
13	DRAINAGE EAST OF SANDFILL 1 ON BOTH SIDES OF HIGHWAY	28,356

LEGEND:

- REMOVAL COMPLETE
- ACTIVE PHASE REMOVAL AREAS
- CONSTRUCTION ACCESS TRACK
- NAVAJO NATION BOUNDARY
- HAUL ROAD
- EXISTING STORMWATER CHANNELS
- MINE SITE OUTLET CHANNEL
- CONSTRUCTION EASEMENT BOUNDARY
- (1) REMOVAL AREA ID

NOTE(S):

1. ALL TEMPORARY STORMWATER CONTROLS TO BE REMOVED UPON COMPLETION OF PHASE 6.

0 200 400
SCALE IN FEET

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

DESIGNED K REED
CHECKED M WITLER
APPROVED J CUMBERS

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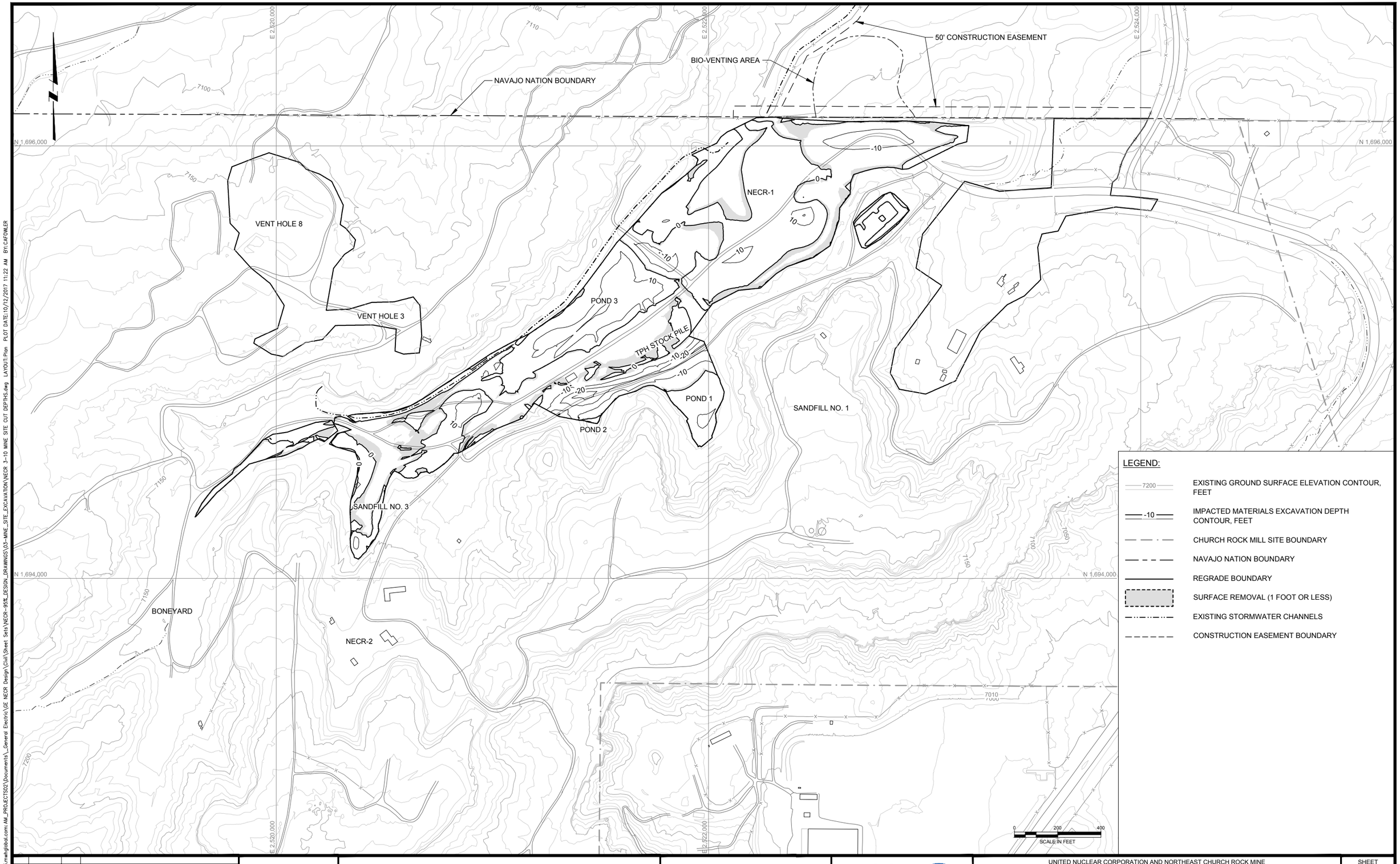
UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO
NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MINE SITE REMOVAL EXCAVATIONS AND DEMOLITION
PHASE 6 REMOVAL AREAS

SHEET
3-09
233001048



LEGEND:

- 7200 — EXISTING GROUND SURFACE ELEVATION CONTOUR, FEET
- -10 — IMPACTED MATERIALS EXCAVATION DEPTH CONTOUR, FEET
- CHURCH ROCK MILL SITE BOUNDARY
- NAVAJO NATION BOUNDARY
- REGRADE BOUNDARY
- SURFACE REMOVAL (1 FOOT OR LESS)
- EXISTING STORMWATER CHANNELS
- CONSTRUCTION EASEMENT BOUNDARY

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

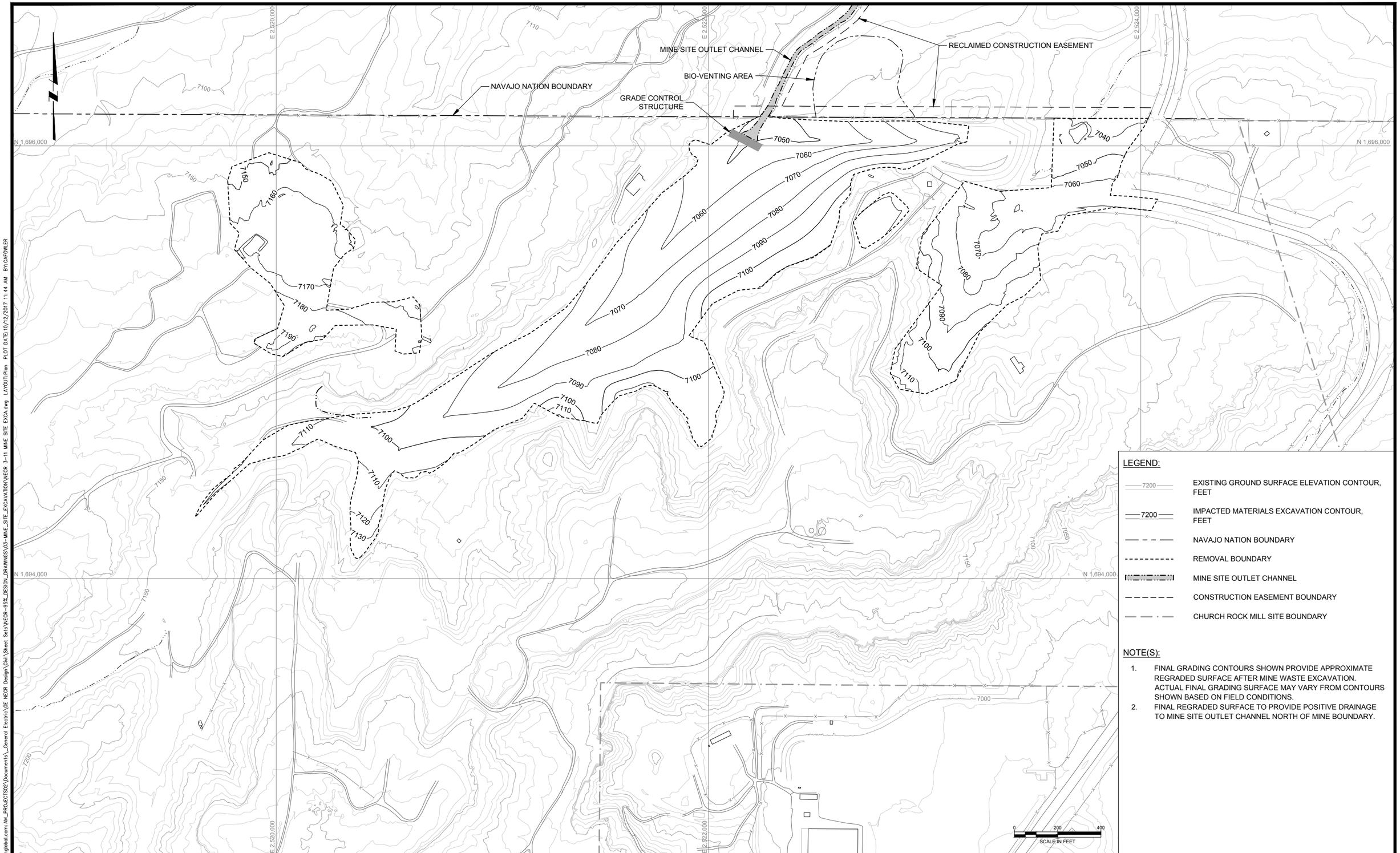
DESIGNED K REED
CHECKED M WITLER
APPROVED J CUMBERS

MWH. now part of Stantec

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO
NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MINE SITE REMOVAL EXCAVATIONS AND DEMOLITION
CUT / FILL DEPTHS - NEAT LINE TO FINAL GRADE

SHEET
3-10
233001048

pw:\\pmerypwin103.mwhglobal.com:AM_PROJECTS02\Documents_General Electric\GE NECR Design\Civil\Sheet Sets\NECR-95%_DESIGN_DRAWINGS\03-MINE_SITE_EXCAVATION\NECR 3-10 MINE SITE CUT DEPTHS.dwg LAYOUT:Plan PLOT DATE:10/12/2017 11:22 AM BY:CAFOWLER



LEGEND:

- 7200 — EXISTING GROUND SURFACE ELEVATION CONTOUR, FEET
- 7200 — IMPACTED MATERIALS EXCAVATION CONTOUR, FEET
- NAVAJO NATION BOUNDARY
- REMOVAL BOUNDARY
- MINE SITE OUTLET CHANNEL
- CONSTRUCTION EASEMENT BOUNDARY
- CHURCH ROCK MILL SITE BOUNDARY

NOTE(S):

1. FINAL GRADING CONTOURS SHOWN PROVIDE APPROXIMATE REGRADED SURFACE AFTER MINE WASTE EXCAVATION. ACTUAL FINAL GRADING SURFACE MAY VARY FROM CONTOURS SHOWN BASED ON FIELD CONDITIONS.
2. FINAL REGRADED SURFACE TO PROVIDE POSITIVE DRAINAGE TO MINE SITE OUTLET CHANNEL NORTH OF MINE BOUNDARY.

REV	DATE	BY	DESCRIPTION
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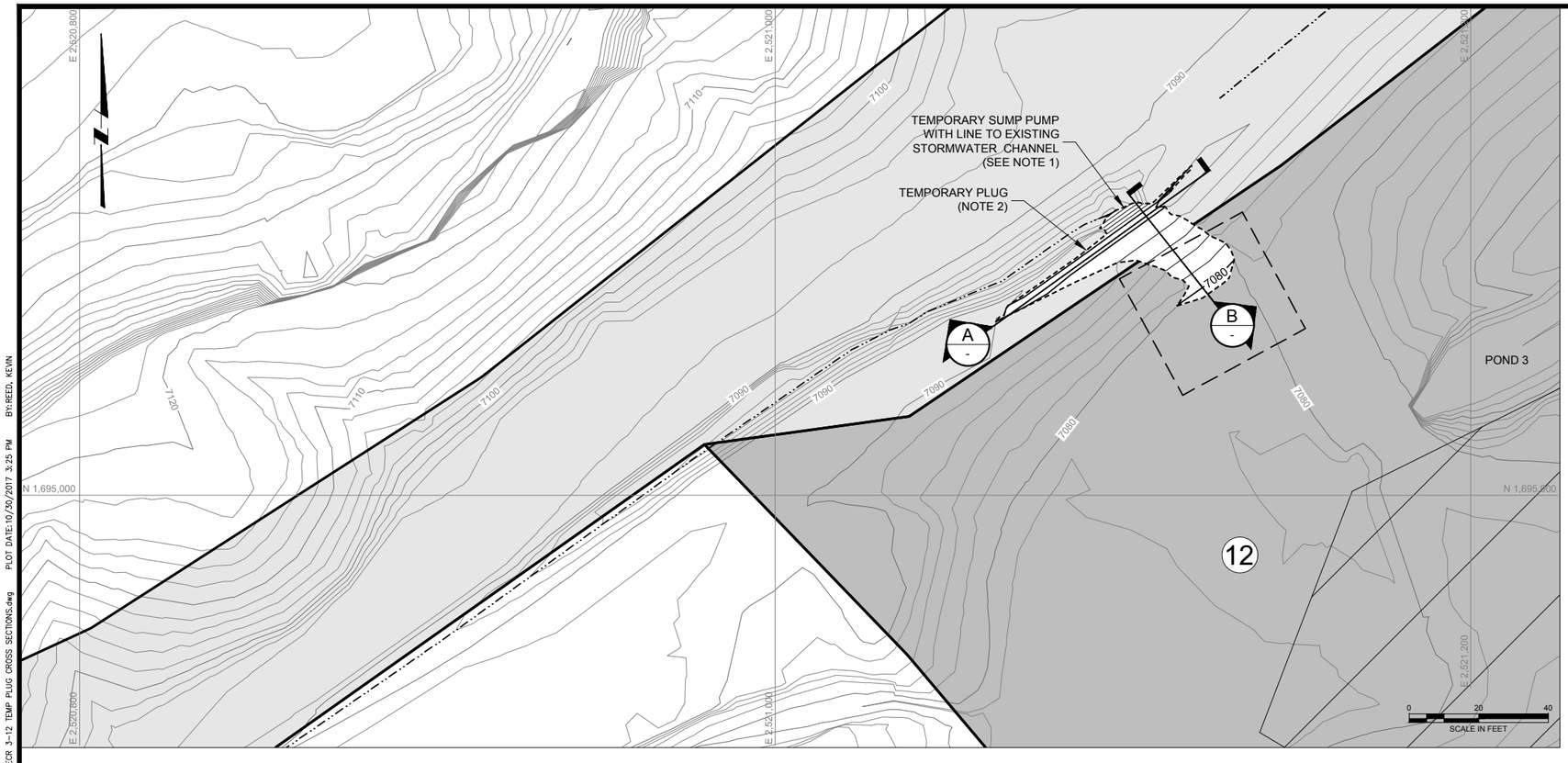
DESIGNED K REED
CHECKED M WITLER
APPROVED J CUMBERS

MWH. now part of Stantec

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO
NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MINE SITE REMOVAL EXCAVATIONS AND DEMOLITION
FINAL GRADING

SHEET 3-11

233001048



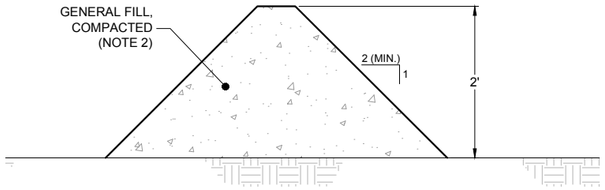
1 / 3-12 TEMPORARY PLUG
(SEE SHEET 3-07 FOR LOCATION)

LEGEND:

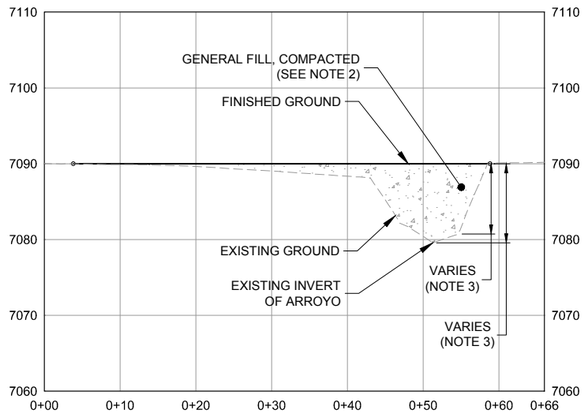
- 7200 — EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- 7200 — PROPOSED SURFACE CONTOUR & ELEVATION, FEET
- IMPACTED AREAS
- REMOVAL COMPLETE
- EXISTING STORMWATER CHANNEL
- PONDING EXTENT BOUNDARY

NOTE(S):

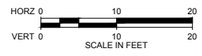
1. 50 GPM SUMP PUMP IS REQUIRED TO REMOVE STORMWATER THAT COLLECTS IN EXISTING ARROYO BEHIND EARTHEN PLUG. TO BE PROVIDED BY CONTRACTOR. REMOVED STORMWATER CAN BE RELEASED TO THE EXISTING STORMWATER CHANNEL THAT BYPASSES POND 3 TO THE NORTHEAST.
2. PLUG AND TYPICAL BERM CONSTRUCTED WITH AVAILABLE ONSITE, CLEAN SOIL COMPACTED IN 2-FT LIFTS TO 95% OF STANDARD PROCTOR DENSITY.
3. CONSTRUCT PLUG HEIGHT TO BE LEVEL WITH GROUND SURFACE.

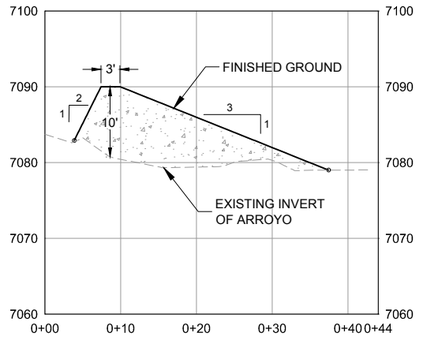


2 / 3-12 TEMPORARY DIVERSION BERM DETAIL
(NOT TO SCALE)

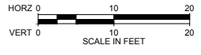


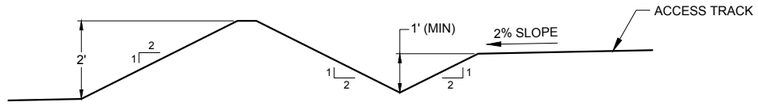
A / - TEMPORARY PLUG SECTION A





B / - TEMPORARY PLUG SECTION B





2 / 3-11 TEMPORARY CONSTRUCTION ACCESS TRACK SECTION
(NOT TO SCALE)

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

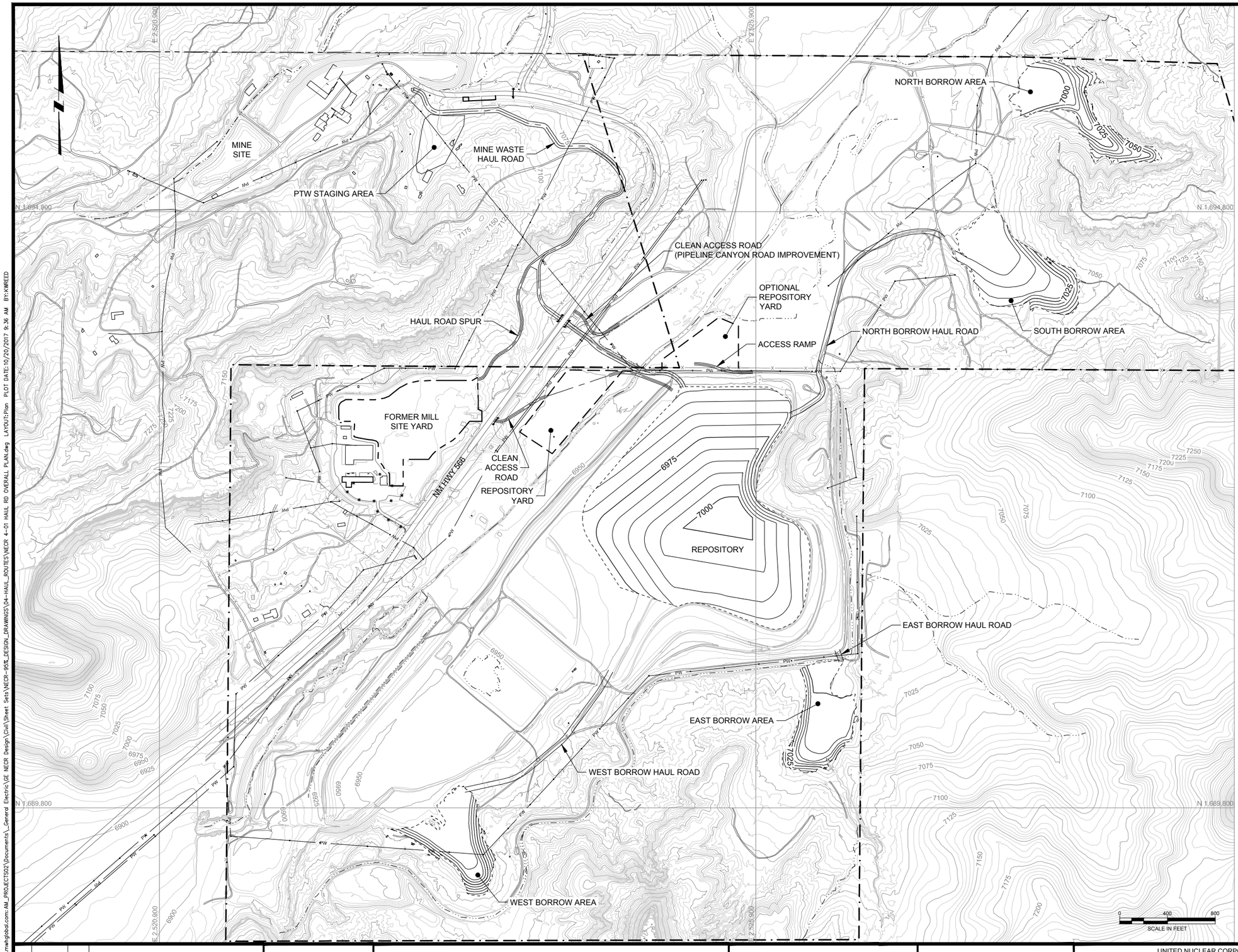
DESIGNED K REED
CHECKED M WITLER
APPROVED J CUMBERS

MWH now part of Stantec

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO
NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MINE SITE REMOVAL EXCAVATIONS AND DEMOLITION
TEMPORARY PLUG CROSS SECTIONS AND TYPICAL BERM DETAIL

SHEET
3-12
233001048

pw:\\pmerypwin103.mwhglobal.com:AM_PROJECTS02\Documents_General Electric\GE NECR Design\Civil\Sheet Sets\NECR-95%_DESIGN_DRAWINGS\03-MINE_SITE_EXCAVATION\NECR 3-12 TEMP PLUG CROSS SECTIONS.dwg PLOT DATE:10/30/2017 3:25 PM BY:REED, KEVIN



LEGEND:

- EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- PROPOSED SURFACE CONTOUR & ELEVATION, FEET
- POWER LINES
- UNC PROPERTY BOUNDARY
- NATURAL DRAINAGE
- FORMER MILL SITE YARD BOUNDARY

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

DESIGNED K REED
CHECKED J COLEMAN
APPROVED J CUMBERS

MWH now part of Stantec

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
HAUL ROAD OVERALL PLAN

SHEET
4-01
233001048

plot: \\amerpwin103.mwhglobal.com:AM_PRO:ECT502\Documents_General Electric\GE NECR Design\Civil\Sheet Sets\NECR-95%_DESIGN_DRAWINGS\04-HAUL_ROUTES\NECR 4-01 HAUL RD OVERALL PLAN.dwg LAYOUT:Plan PLOT DATE:10/20/2017 9:36 AM BY:KWREED

LEGEND:

- EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- PROPOSED SURFACE CONTOUR & ELEVATION, FEET
- POWER LINES
- UNC PROPERTY BOUNDARY
- NATURAL DRAINAGE
- FORMER MILL SITE YARD BOUNDARY
- SHEET INDEX BOUNDARY
- EXISTING FENCE

MINE SITE

PTW STAGING AREA

FORMER MILL SITE YARD

REPOSITORY YARD

OPTIONAL REPOSITORY YARD

NM HWY 566

SEE SHEET 4-03

SEE SHEET 4-04

SEE SHEET 4-05

SEE SHEET 4-06 AND 4-08

SEE SHEET 4-07

SEE SHEET 4-09

SEE SHEET 4-10

SCALE IN FEET

HAUL ROAD PLAN VIEW INDEX

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

DESIGNED K REED
CHECKED J COLEMAN
APPROVED J CUMBERS

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UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
HAUL ROAD PLAN INDEX

SHEET 4-02

233001048

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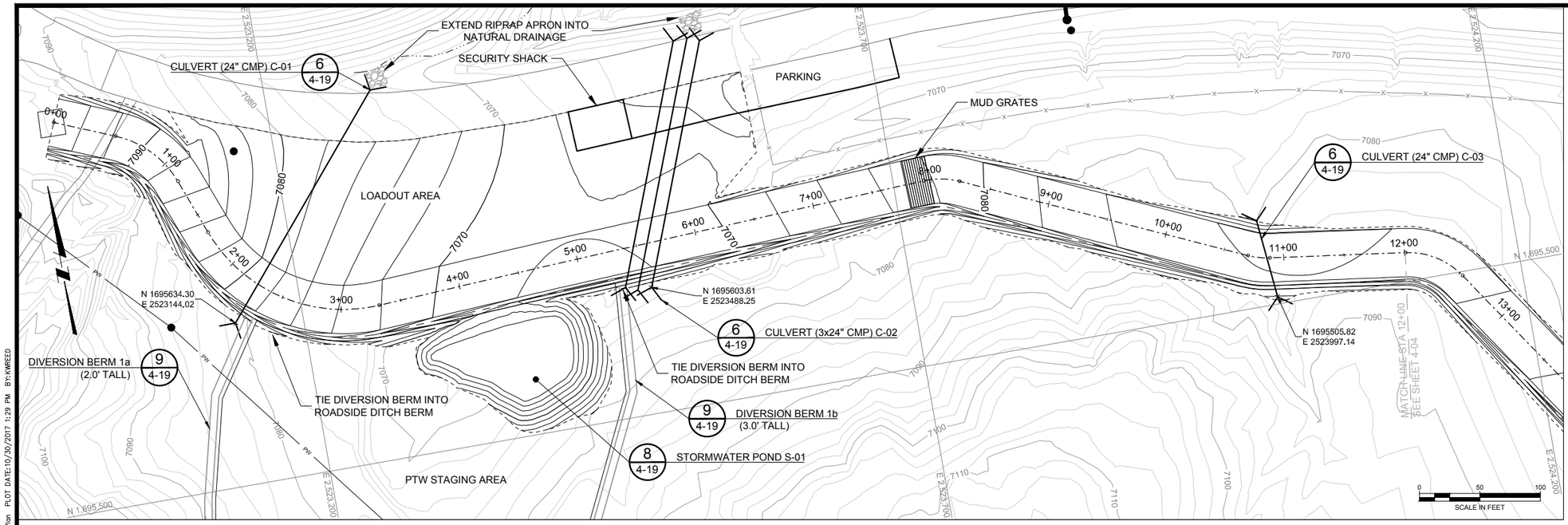


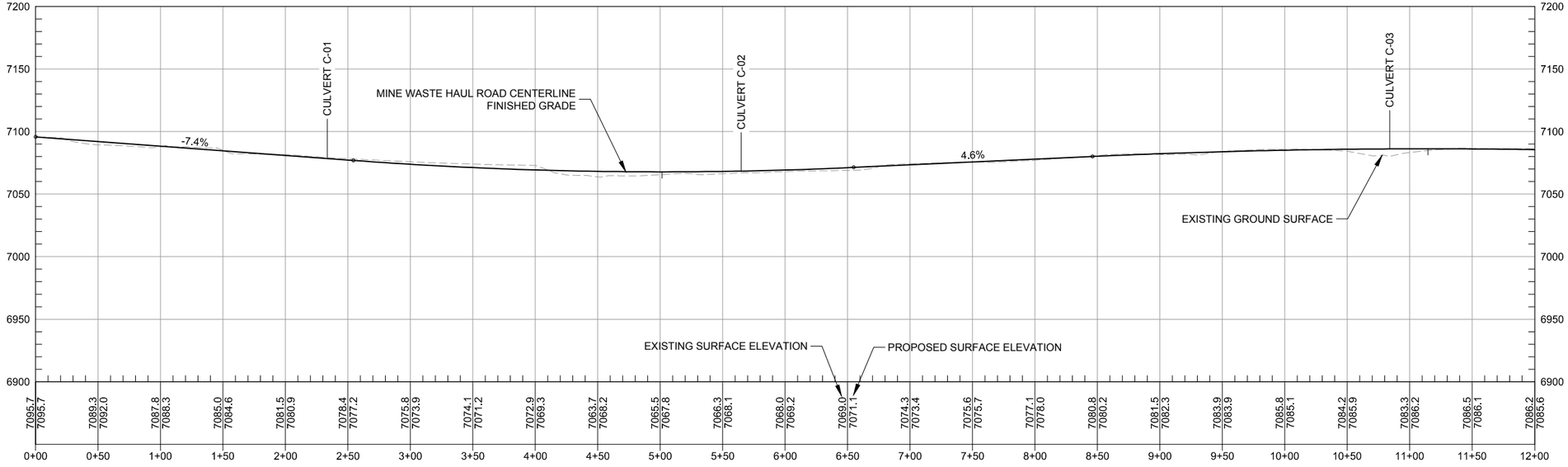
LEGEND:

- EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- PROPOSED SURFACE CONTOUR & ELEVATION, FEET
- CULVERT
- GATE
- POWER LINES
- EXISTING FENCE
- PROPOSED SURFACE BOUNDARY
- NATURAL DRAINAGE

NOTE(S):

1. TYPICAL ROAD SECTIONS ARE SHOWN ON DETAILS 1 AND 2 ON SHEET 4-18.
   A. 2-LANE SECTION: STA 0+00 TO 21+00
   B. 1-LANE SECTION: STA 22+00 TO 35+50
   C. 2-LANE SECTION: STA 36+00 TO 48+89

MINE WASTE HAUL ROAD PLAN VIEW
STATION 0+00 TO 12+00



MINE WASTE HAUL ROAD PROFILE
STATION 0+00 TO 12+00

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

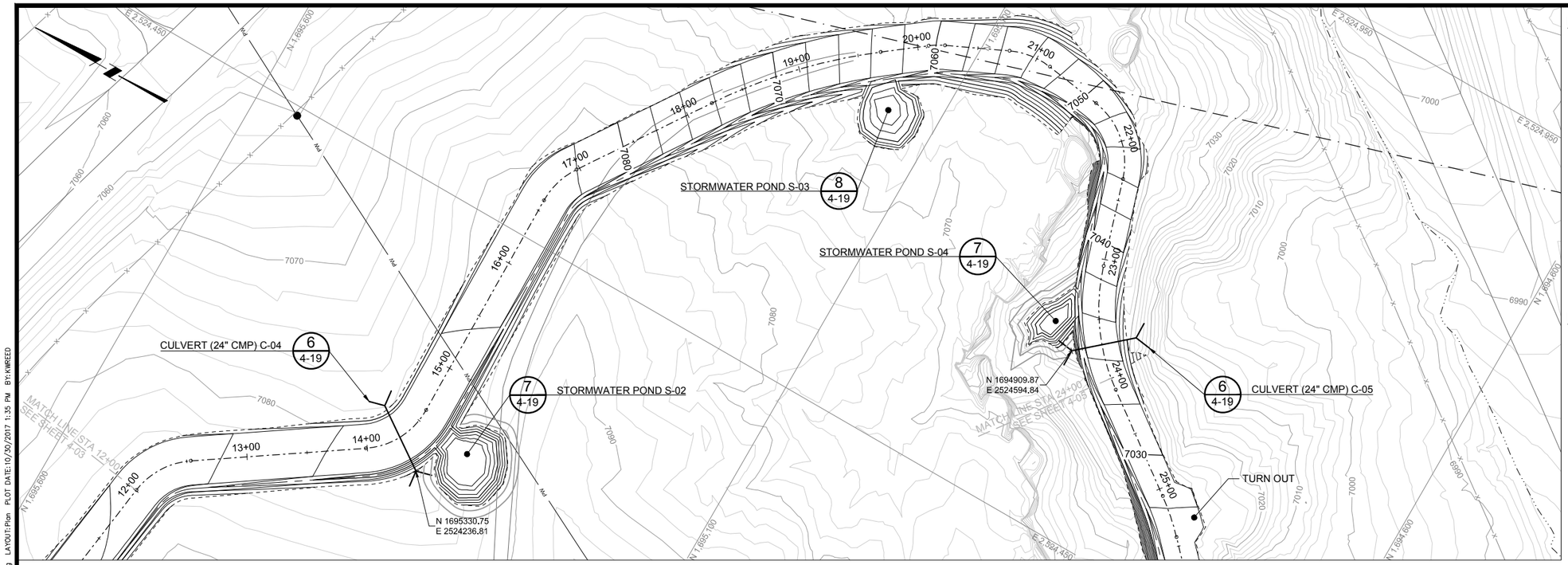
DESIGNED K REED
CHECKED J COLEMAN
APPROVED J CUMBERS

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 30% DESIGN
MINE WASTE HAUL ROAD PLAN AND PROFILE (1 OF 4)

SHEET 4-03

233001048



MINE WASTE HAUL ROAD PLAN VIEW
STATION 12+00 TO 24+00

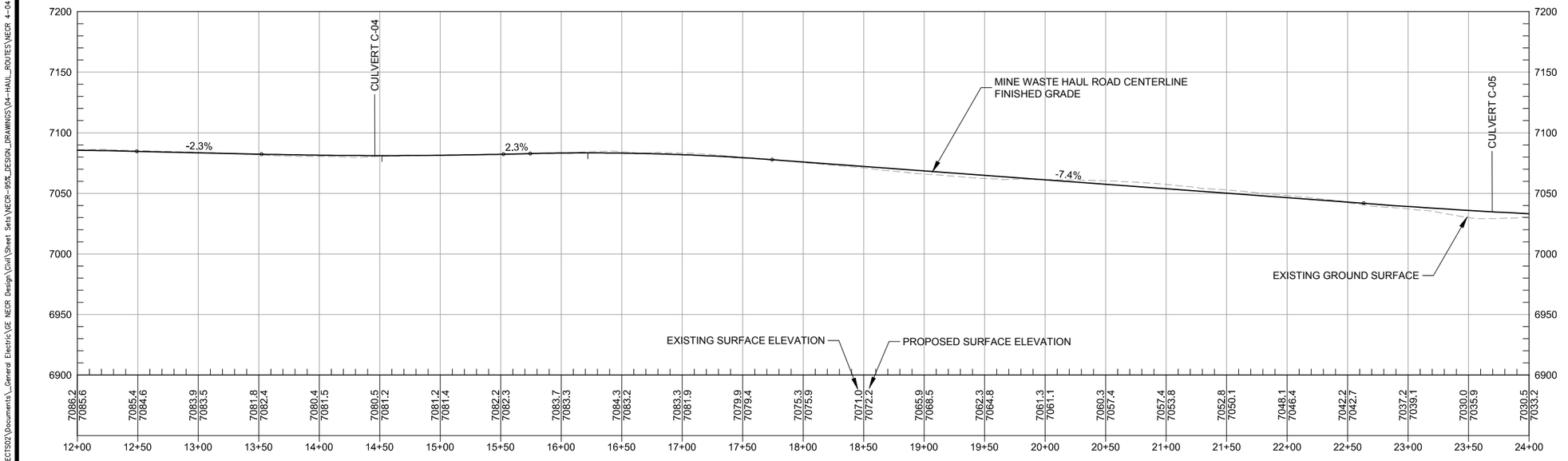
SCALE IN FEET: 0, 50, 100

LEGEND:

- 7200 — EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- 7200 — PROPOSED SURFACE CONTOUR & ELEVATION, FEET
- CULVERT
- GATE
- PW — POWER LINES
- UNC PROPERTY BOUNDARY
- EXISTING FENCE
- PROPOSED SURFACE BOUNDARY
- NATURAL DRAINAGE

NOTE(S):

1. TYPICAL ROAD SECTIONS ARE SHOWN ON DETAILS 1 AND 2 ON SHEET 4-18.
   A. 2-LANE SECTION: STA 0+00 TO 21+00
   B. 1-LANE SECTION: STA 22+00 TO 35+50
   C. 2-LANE SECTION: STA 36+00 TO 48+89



MINE WASTE HAUL ROAD PROFILE
STATION 12+00 TO 24+00

HORZ 0, 50, 100
VERT 0, 50, 100
SCALE IN FEET

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

DESIGNED K REED
CHECKED J COLEMAN
APPROVED J CUMBERS

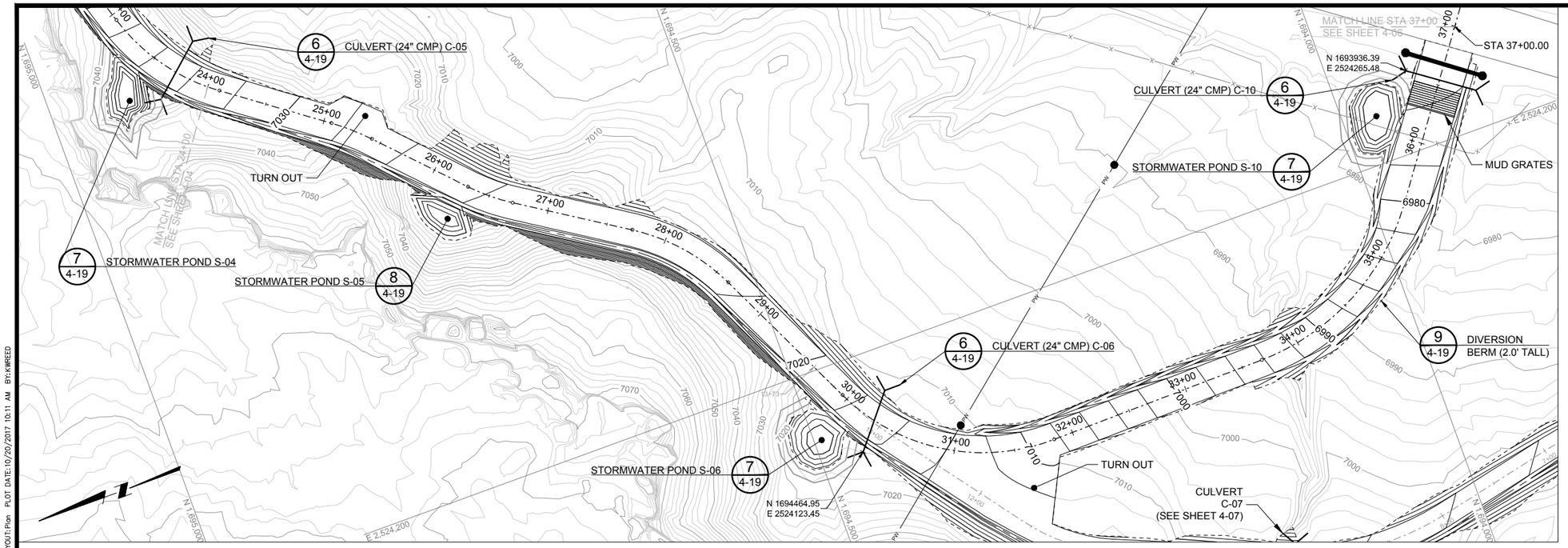
MWH now part of Stantec

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MINE WASTE HAUL ROAD PLAN AND PROFILE (2 OF 4)

SHEET 4-04

233001048



MINE WASTE HAUL ROAD PLAN VIEW
STATION 24+00 TO 37+00

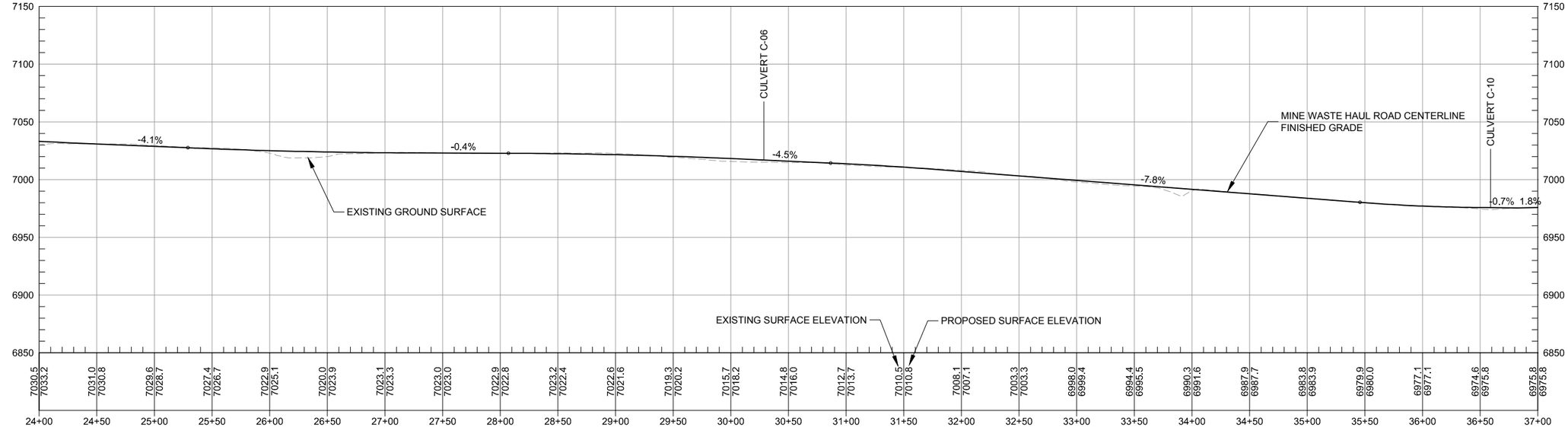
SCALE IN FEET: 0, 50, 100

LEGEND:

- EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- PROPOSED SURFACE CONTOUR & ELEVATION, FEET
- CULVERT
- GATE
- POWER LINES
- EXISTING FENCE
- PROPOSED SURFACE BOUNDARY
- NATURAL DRAINAGE

NOTE(S):

1. TYPICAL ROAD SECTIONS ARE SHOWN ON DETAILS 1 AND 2 ON SHEET 4-18.
   A. 2-LANE SECTION: STA 0+00 TO 21+00
   B. 1-LANE SECTION: STA 22+00 TO 35+50
   C. 2-LANE SECTION: STA 36+00 TO 48+89



MINE WASTE HAUL ROAD PROFILE
STATION 24+00 TO 37+00

HORZ 0, 50, 100
VERT 0, 50, 100
SCALE IN FEET

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

DESIGNED K REED
CHECKED J COLEMAN
APPROVED J CUMBERS

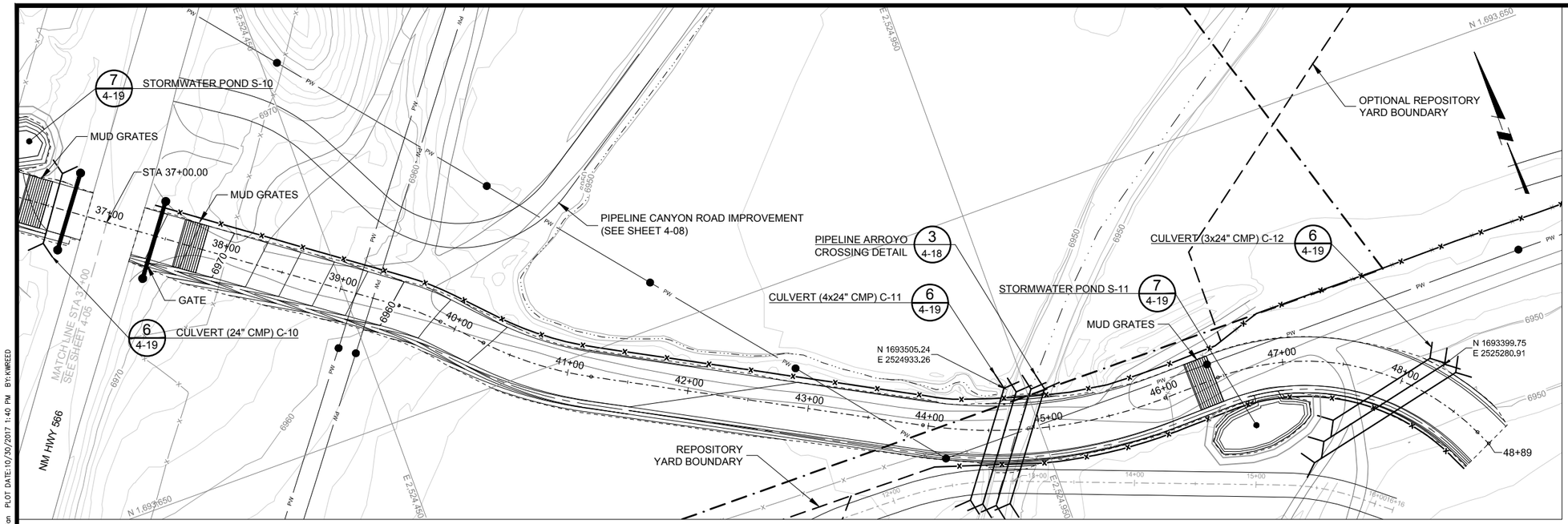
MWH now part of Stantec

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MINE WASTE HAUL ROAD PLAN AND PROFILE (3 OF 4)

SHEET 4-05

233001048



LEGEND:

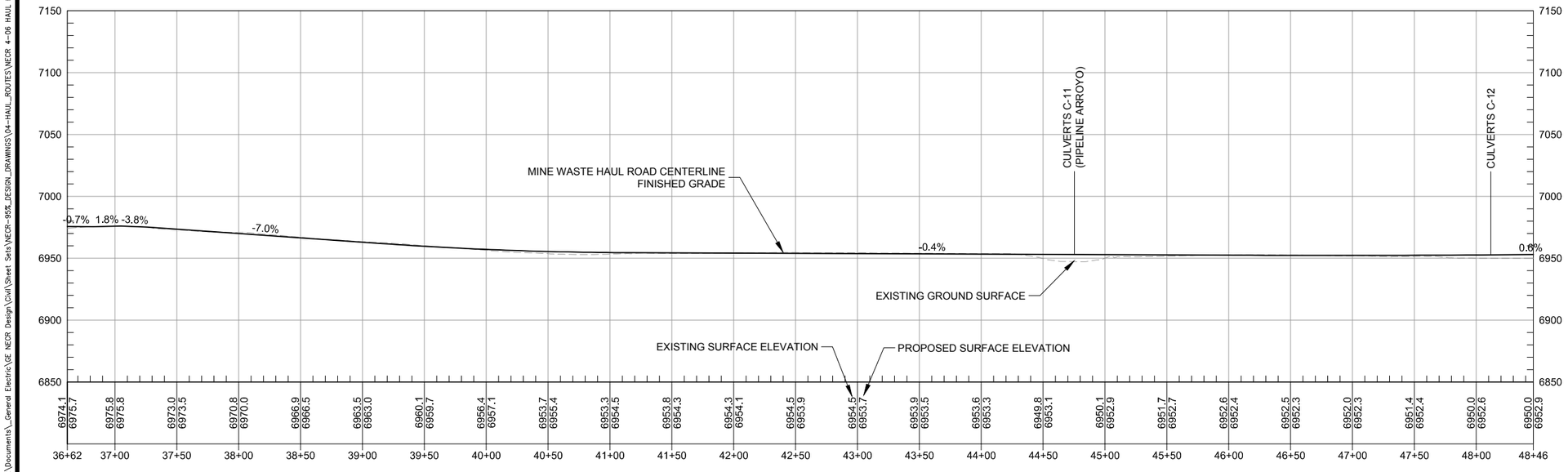
- EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- PROPOSED SURFACE CONTOUR & ELEVATION, FEET
- CULVERT
- GATE
- POWER LINES
- UNC PROPERTY BOUNDARY
- EXISTING FENCE
- PROPOSED SURFACE BOUNDARY
- NATURAL DRAINAGE

NOTE(S):

1. TYPICAL ROAD SECTIONS ARE SHOWN ON DETAILS 1 AND 2 ON SHEET 4-18.
   A. 2-LANE SECTION: STA 0+00 TO 21+00
   B. 1-LANE SECTION: STA 22+00 TO 35+50
   C. 2-LANE SECTION: STA 36+00 TO 48+89

MINE WASTE HAUL ROAD PLAN VIEW
STATION 37+00 TO 48+89

SCALE IN FEET 0 50 100



MINE WASTE HAUL ROAD PROFILE
STATION 37+77 TO 48+89

HORZ 0 50 100
VERT 0 50 100
SCALE IN FEET

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

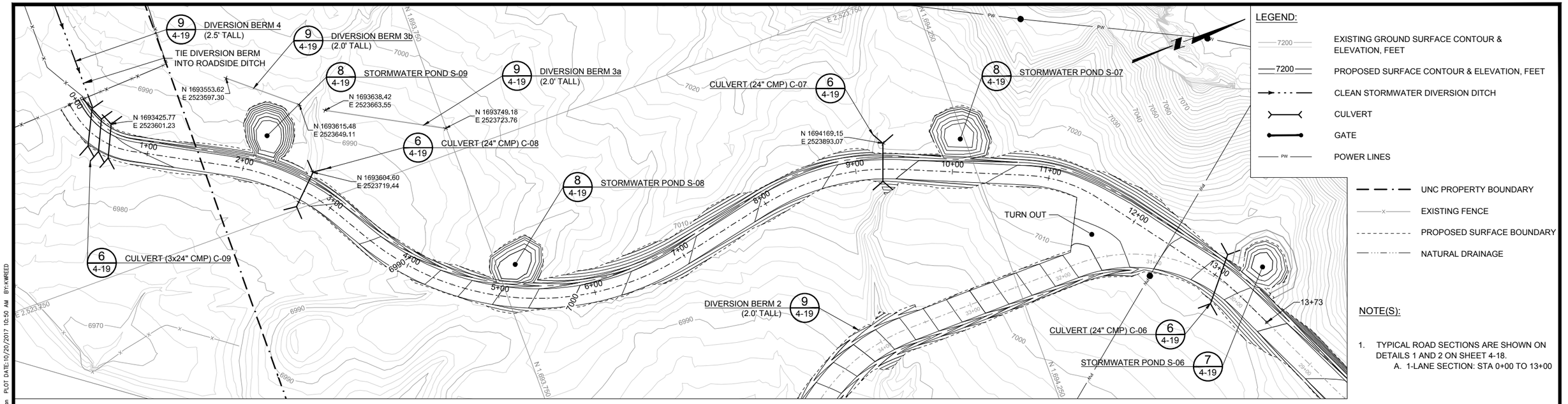
DESIGNED K REED
CHECKED J COLEMAN
APPROVED J CUMBERS

MWH now part of Stantec

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MINE WASTE HAUL ROAD PLAN AND PROFILE (4 OF 4)

SHEET
4-06
233001048

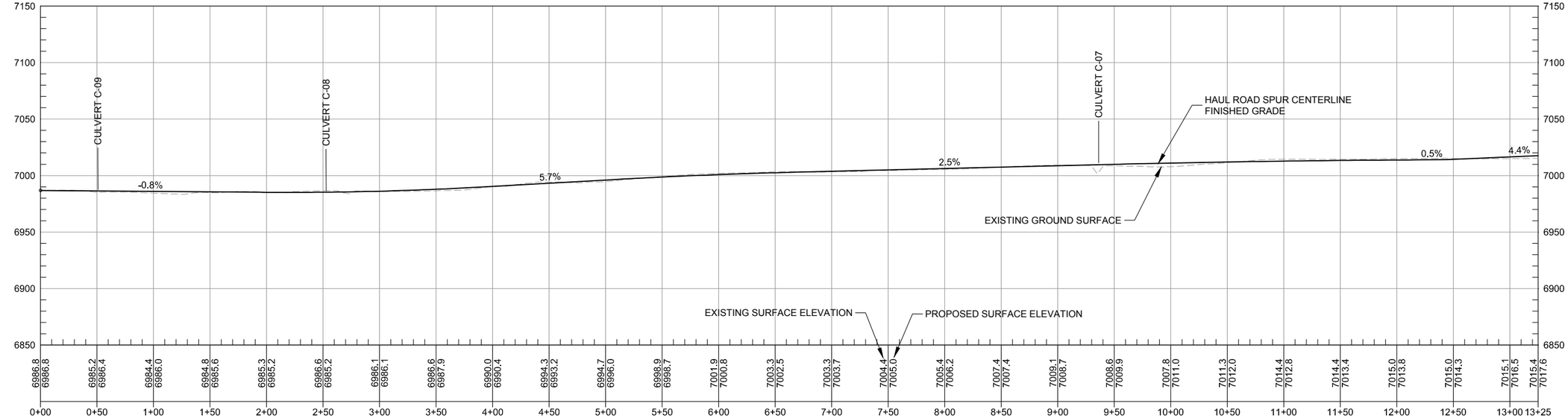


NOTE(S):

1. TYPICAL ROAD SECTIONS ARE SHOWN ON DETAILS 1 AND 2 ON SHEET 4-18.
   A. 1-LANE SECTION: STA 0+00 TO 13+00

HAUL ROAD SPUR PLAN VIEW
STATION 0+00 TO 13+09

SCALE IN FEET: 0, 50, 100



HAUL ROAD SPUR PROFILE
STATION 0+00 TO 13+09

HORZ SCALE IN FEET: 0, 50, 100
VERT SCALE IN FEET: 0, 50, 100

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

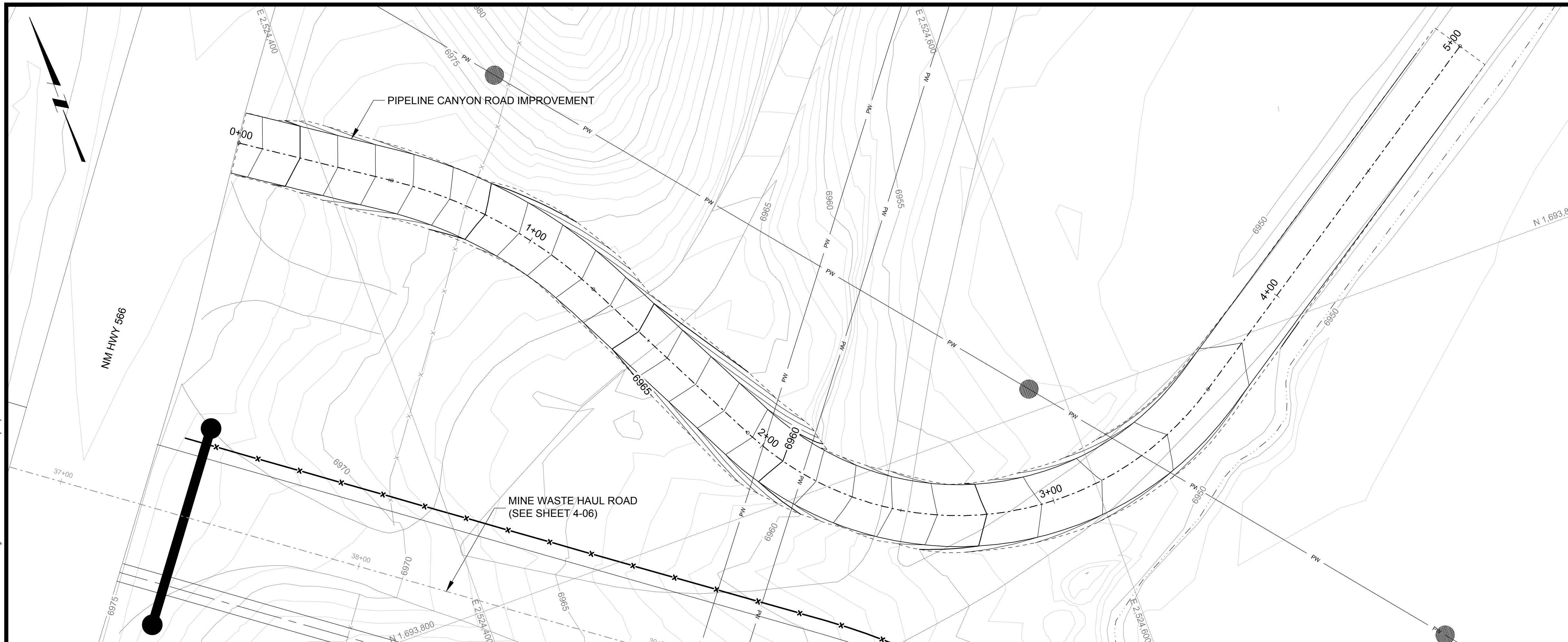
DESIGNED K REED
CHECKED J COLEMAN
APPROVED J CUMBERS

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MINE WASTE HAUL ROAD SPUR PLAN AND PROFILE

SHEET 4-07

233001048



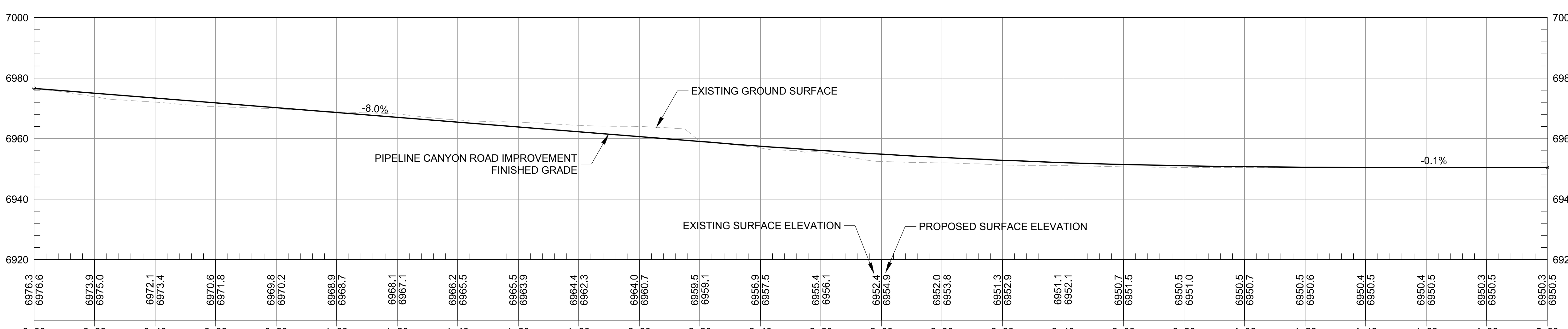
LEGEND:

7200	EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
7200	PROPOSED SURFACE CONTOUR & ELEVATION, FEET
	GATE
	SEPARATION FENCE
PW	POWER LINES
	PROPOSED SURFACE BOUNDARY
	NATURAL DRAINAGE

PIPELINE CANYON ROAD IMPROVEMENT PLAN VIEW

STATION 0+00 TO 5+00

0 20 40
SCALE IN FEET



PIPELINE CANYON ROAD IMPROVEMENT PROFILE

STATION 0+00 TO 5+00

HORZ 0 20 40
VERT 0 20 40
SCALE IN FEET

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

DESIGNED K REED
CHECKED J COLEMAN
APPROVED J CUMBERS

MWH. now part of Stantec

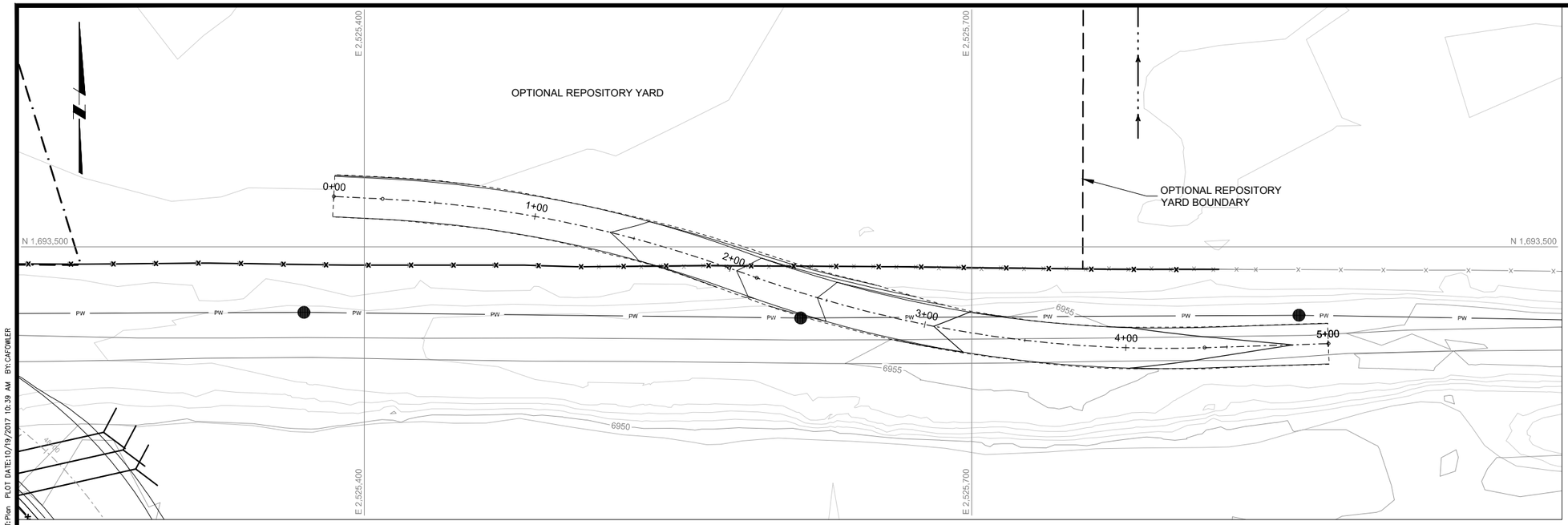
UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
CLEAN ACCESS ROAD PLAN AND PROFILE

SHEET 4-08

233001048

pw:\\amerpwint03.mwhglobal.com:AM_PROJECTS02\Documents_General Electric\GE NECR Design\Civil\Sheet Sets\NECR-95%_DESIGN_DRAWINGS\04-HAUL_ROUTES\NECR 4-08 PIPELINE CANYON RD PLAN PROF.dwg LAYOUT:Plan PLOT DATE:10/24/2017 10:26 AM BY:KWREED

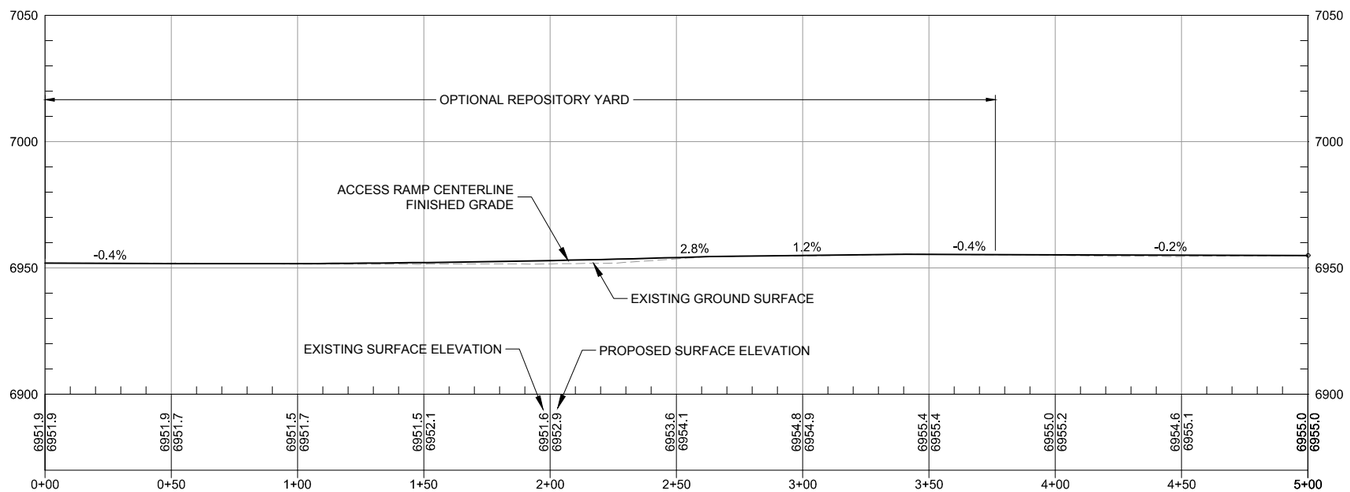


ACCESS RAMP PLAN VIEW
STATION 0+00 TO 5+00

SCALE IN FEET: 0, 30, 60

LEGEND:

- 7200 — EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- 7200 — PROPOSED SURFACE CONTOUR & ELEVATION, FEET
- SEPARATION FENCE
- DITCH
- PW — POWER LINES
- UNC PROPERTY BOUNDARY



ACCESS RAMP PROFILE
STATION 0+00 TO 5+00

HORZ 0, 30, 60
VERT 0, 30, 60
SCALE IN FEET

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

DESIGNED K REED
CHECKED J COLEMAN
APPROVED J CUMBERS

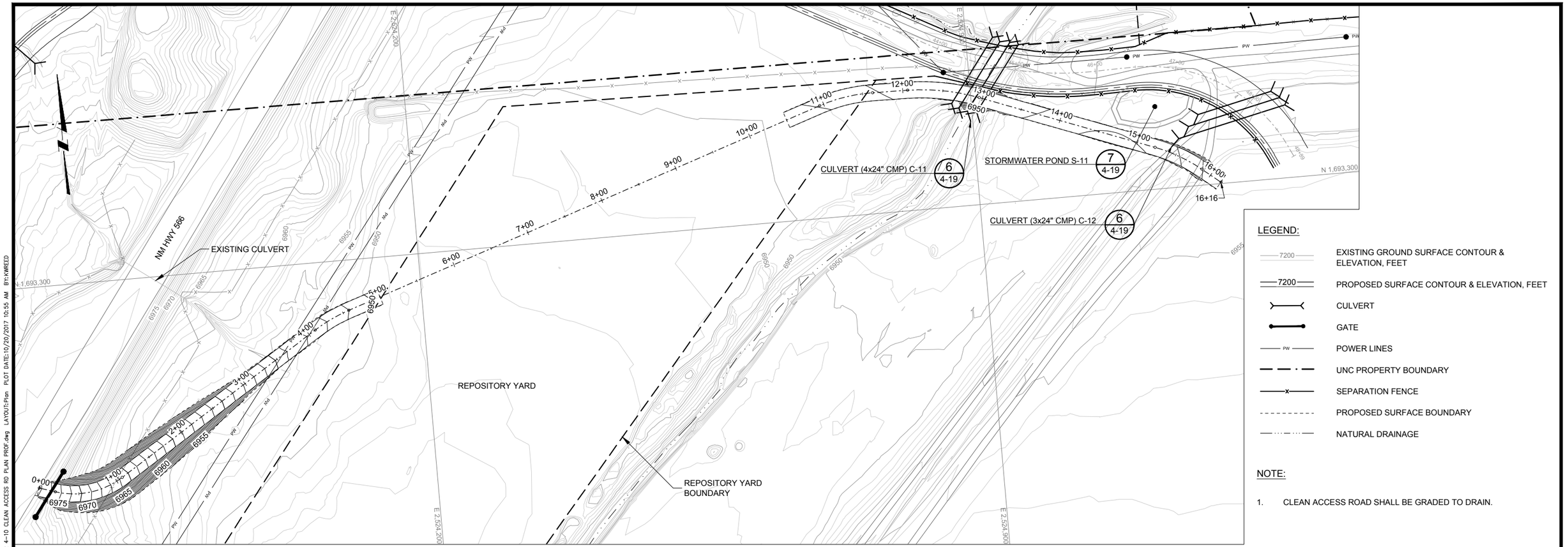
MWH. now part of Stantec

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
CLEAN ACCESS RAMP PLAN AND PROFILE

SHEET
4-09
233001048

pw:\\amerpwint03.mwhglobal.com:AM_PROJECTS02\Documents_General Electric\GE NECR Design\Civil\Sheet Sets\NECR-95%_DESIGN_DRAWINGS\04-HAUL_ROUTES\NECR 4-09 ACCESS RAMP PLAN PROF.dwg LAYOUT:Plan PLOT DATE:10/19/2017 10:39 AM BY:CAFOWLER



LEGEND:

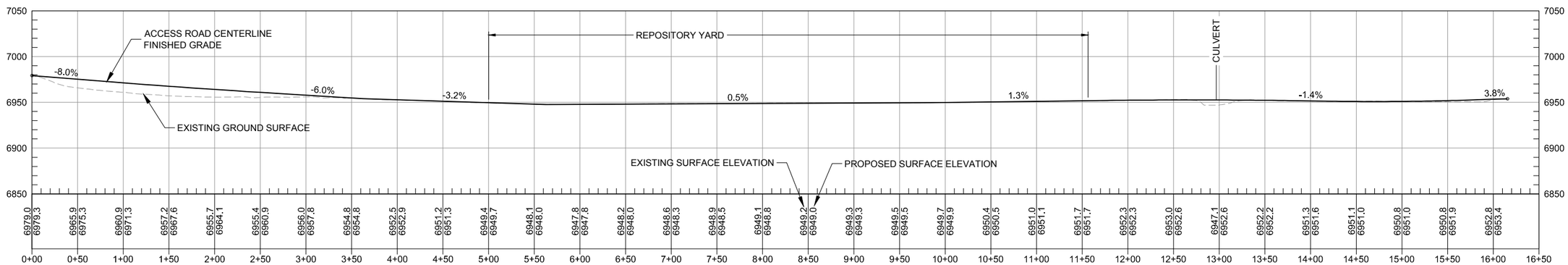
- EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- PROPOSED SURFACE CONTOUR & ELEVATION, FEET
- CULVERT
- GATE
- POWER LINES
- UNC PROPERTY BOUNDARY
- SEPARATION FENCE
- PROPOSED SURFACE BOUNDARY
- NATURAL DRAINAGE

NOTE:

1. CLEAN ACCESS ROAD SHALL BE GRADED TO DRAIN.

CLEAN ACCESS ROAD PLAN VIEW
STATION 0+00 TO 16+16

SCALE IN FEET: 0, 60, 120



CLEAN ACCESS ROAD PROFILE
STATION 0+00 TO 16+16

HORZ 0, 30, 60
VERT 0, 30, 60
SCALE IN FEET

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

DESIGNED K REED
CHECKED J COLEMAN
APPROVED J CUMBERS

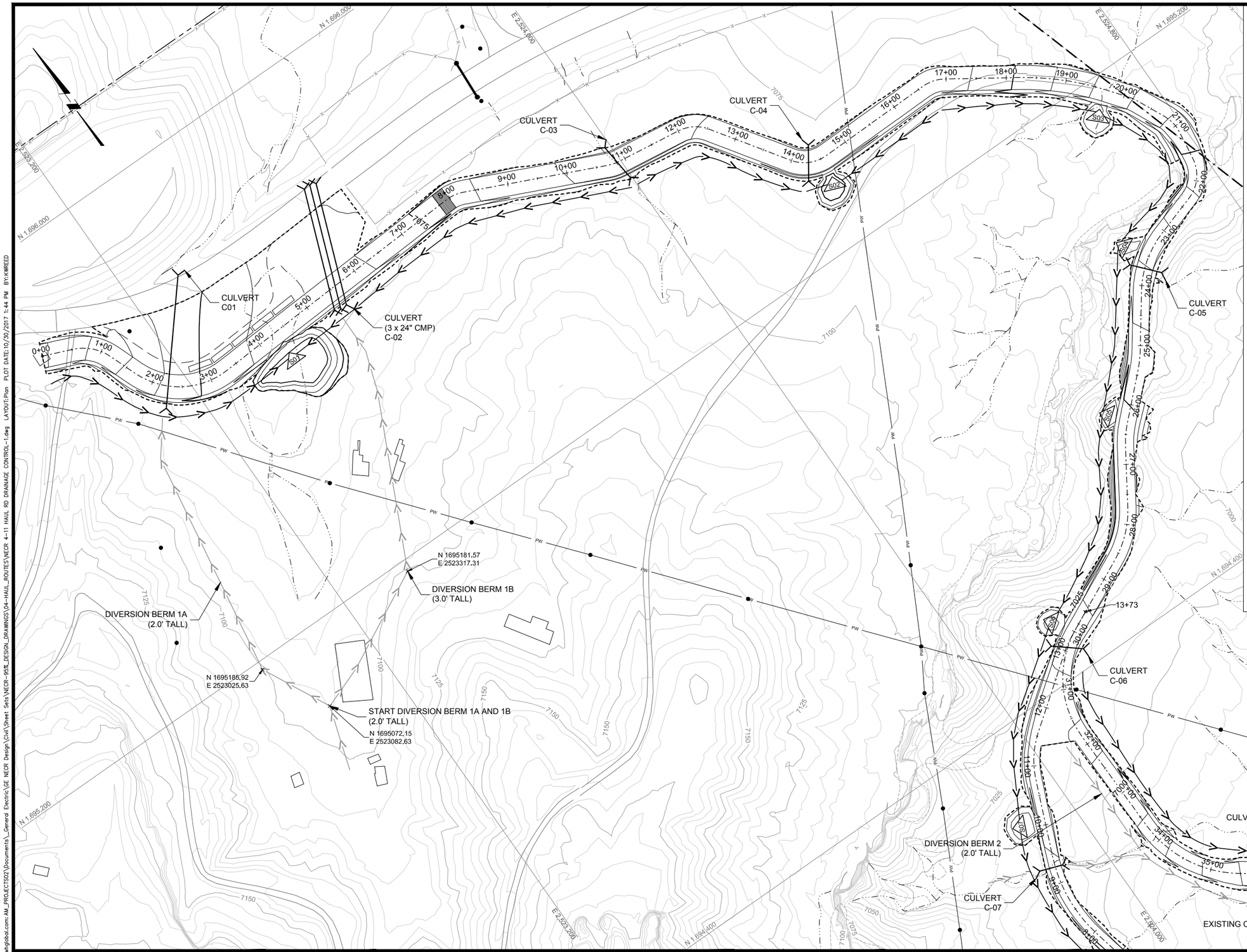
MWH now part of Stantec

UNC GE

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
REPOSITORY YARD CLEAN ACCESS ROAD PLAN AND PROFILE

SHEET
4-10
233001048



LEGEND:

- EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- PROPOSED SURFACE CONTOUR & ELEVATION, FEET
- UNC PROPERTY BOUNDARY
- PROPOSED SURFACE BOUNDARY
- NATURAL DRAINAGE
- STORMWATER POND
- CULVERT
- CONTACT WATER FLOW DIRECTION
- NON-CONTACT WATER FLOW PATH
- GATE
- POWER LINES
- MUD GRATES

NOTE(S):

1. RUNOFF FROM THE MINE WASTE HAUL ROAD SHALL BE CONTAINED IN STORMWATER PONDS FOR COLLECTION AND DISPOSAL.
2. DRAINAGE CROSSINGS SHALL BE DESIGNED TO KEEP CONTACT RUNOFF SEPARATE FROM NON-CONTACT RUNOFF.

STORMWATER POND ID	APPROXIMATE STATION
S01	4+20
S02	14+35
S03	19+53
S04	23+45
S05	26+50
S06	30+20
S07	10+00 (ACCESS)
S08	5+00 (ACCESS)
S09	2+20 (ACCESS)
S10	35+90
S11	46+90

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

DESIGNED K REED
CHECKED J COLEMAN
APPROVED J CUMBERS

MWH. now part of Stantec

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MINE WASTE HAUL ROAD DRAINAGE CONTROL PLAN (1 OF 2)

SHEET 4-11

233001048

LEGEND:

7200	EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
7200	PROPOSED SURFACE CONTOUR & ELEVATION, FEET
	UNC PROPERTY BOUNDARY
	PROPOSED SURFACE BOUNDARY
	NATURAL DRAINAGE
S01	STORMWATER POND
	CULVERT
	CONTACT WATER FLOW DIRECTION
	NON-CONTACT WATER FLOW PATH
	GATE
PW	POWER LINES
	MUD GRATES

NOTE(S):

1. RUNOFF FROM THE MINE WASTE HAUL ROAD SHALL BE CONTAINED IN STORMWATER PONDS FOR COLLECTION AND DISPOSAL.
2. DRAINAGE CROSSINGS SHALL BE DESIGNED TO KEEP CONTACT RUNOFF SEPARATE FROM NON-CONTACT RUNOFF.

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

DESIGNED K REED
CHECKED J COLEMAN
APPROVED J CUMBERS

MWH. now part of Stantec

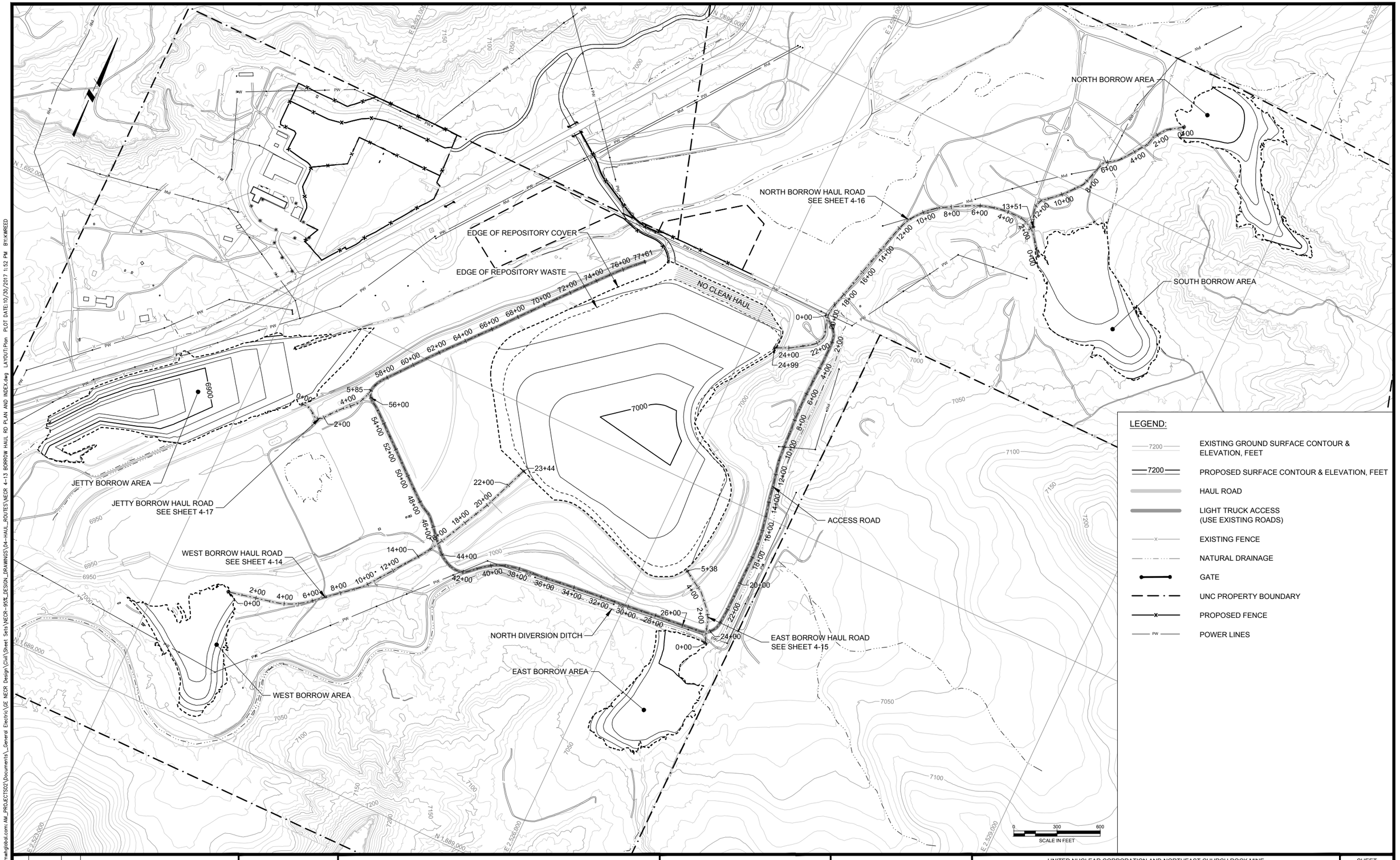
UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MINE WASTE HAUL ROAD DRAINAGE CONTROL PLAN (2 OF 2)

SHEET 4-12

233001048

pw:\\amerpwin103.mwhglobal.com:AM_PROJECTS02\Documents_General Electric\GE NECR Design\Civil\Sheet Sets\NECR-95%_DESIGN_DRAWINGS\04-HAUL_ROUTES\NECR 4-12 HAUL RD DRAINAGE CONTROL-2.dwg LAYOUT:Plan PLOT DATE:10/30/2017 1:48 PM BY:KWREED



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DESIGNED K REED
CHECKED J COLEMAN
APPROVED J CUMBERS

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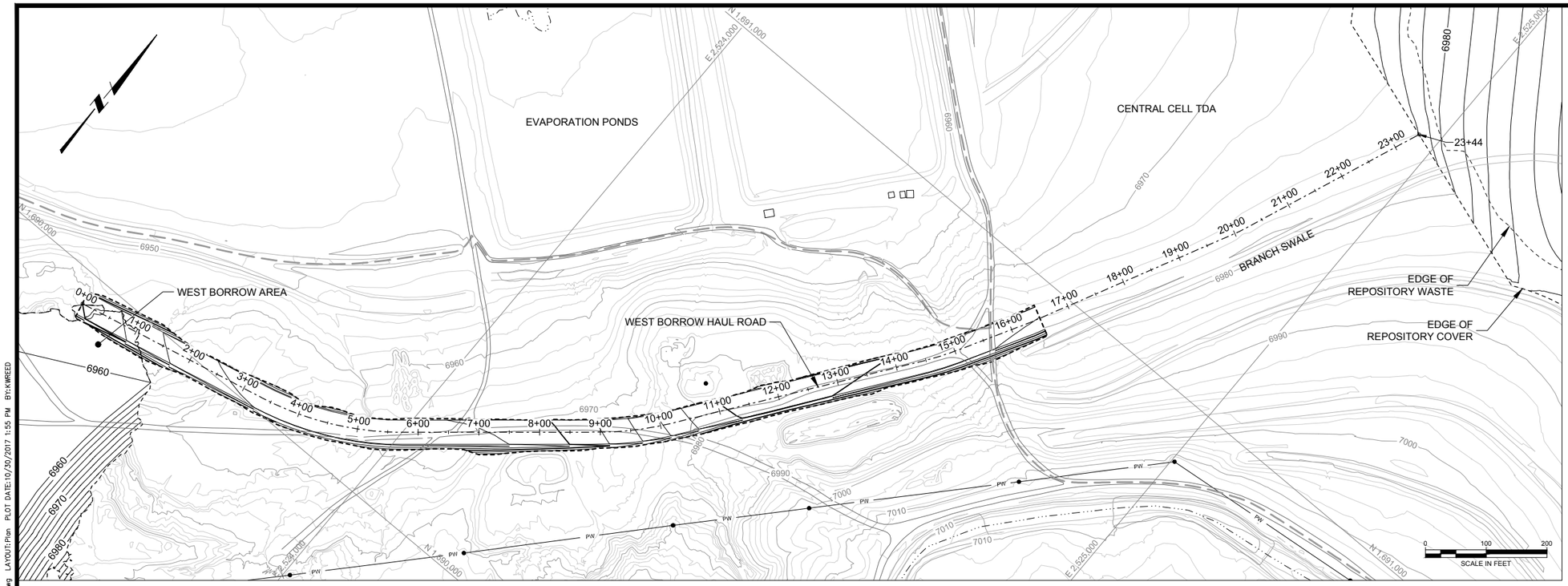
UNC GE

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
BORROW HAUL ROADS

SHEET 4-13

233001048



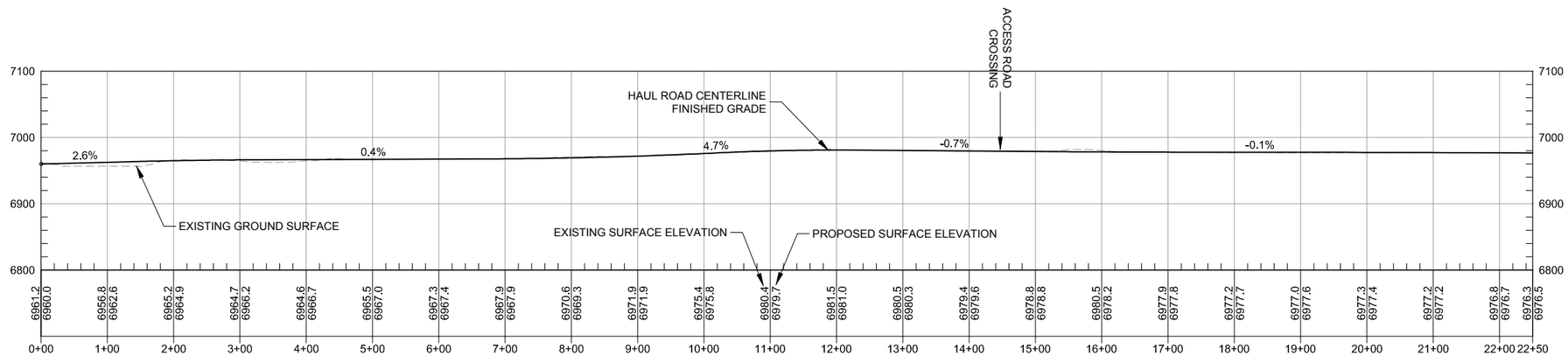
WEST BORROW HAUL ROAD PLAN VIEW
STATION 0+00 TO 22+18

LEGEND:

- 7200 — EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- 7200 — PROPOSED SURFACE CONTOUR & ELEVATION, FEET
- LIMITS OF TAILINGS DISPOSAL AREA
- PW — POWER LINES
- NATURAL DRAINAGE

NOTE(S):

1. BORROW HAUL ROUTES ON THE EXISTING TDA COVER TO BE DESIGNATED BY CONTRACTOR.
2. TDA COVER BENEATH DESIGNATED HAUL ROUTES SHALL BE RECONSTRUCTED UPON COMPLETION OF CONSTRUCTION TO MITIGATE DAMAGE FROM HAUL TRAFFIC.



WEST BORROW HAUL ROAD PROFILE
STATION 0+00 TO 22+18

HORZ 0 100 200
VERT 0 100 200
SCALE IN FEET

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
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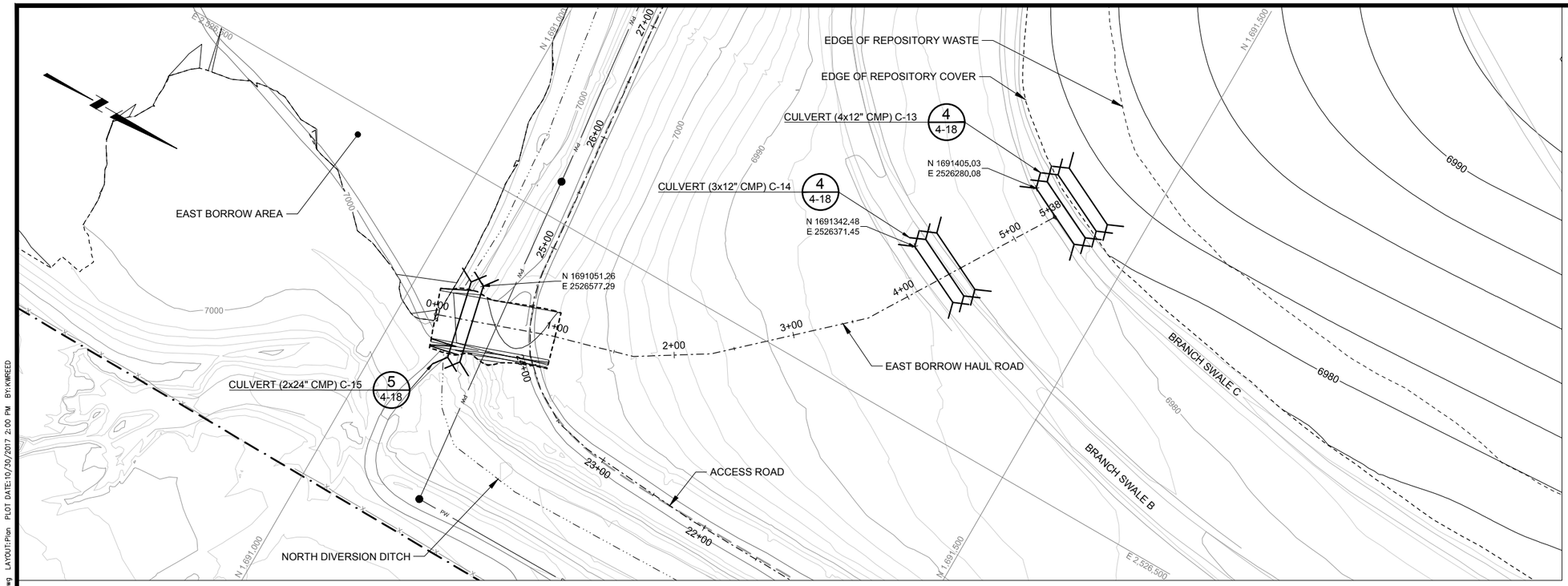
UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
WEST BORROW HAUL ROAD PLAN AND PROFILE

SHEET
4-14
233001048

pw:\\amerpwint03.mwhglobal.com:AM_PROJECTS02\Documents_General Electric\GE NECR Design\Civil\Sheet Sets\NECR-95%_DESIGN_DRAWINGS\04-HAUL_ROUTES\NECR 4-14 BORROW HAUL RD 1.dwg LAYOUT:Plan PLOT DATE:10/30/2017 1:55 PM BY:KWREED



EAST BORROW HAUL ROAD PLAN VIEW
STATION 0+00 TO 5+38

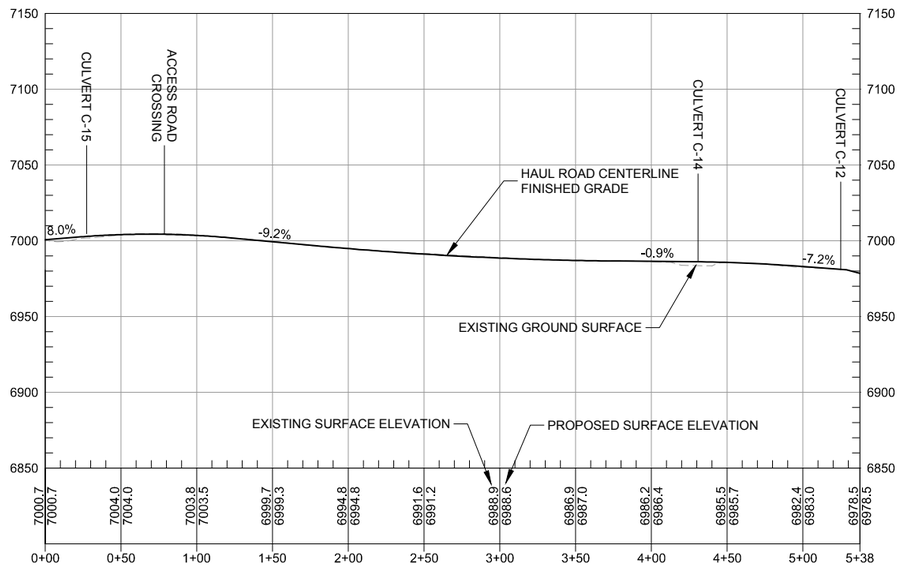
SCALE IN FEET: 0, 50, 100

LEGEND:

- 7200 — EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- 7200 — PROPOSED SURFACE CONTOUR & ELEVATION, FEET
- UNC PROPERTY BOUNDARY
- LIMITS OF TAILINGS DISPOSAL AREA
- PW — POWER LINES
- NATURAL DRAINAGE

NOTE(S):

1. BORROW HAUL ROUTES ON THE EXISTING TDA COVER TO BE DESIGNATED BY CONTRACTOR.
2. TDA COVER BENEATH DESIGNATED HAUL ROUTES SHALL BE RECONSTRUCTED UPON COMPLETION OF CONSTRUCTION TO MITIGATE DAMAGE FROM HAUL TRAFFIC.
3. BRANCH SWALE CULVERTS SIZED TO 12" CMP.



EAST BORROW HAUL ROAD PROFILE
STATION 0+00 TO 5+38

HORZ SCALE IN FEET: 0, 50, 100
VERT SCALE IN FEET: 0, 50, 100

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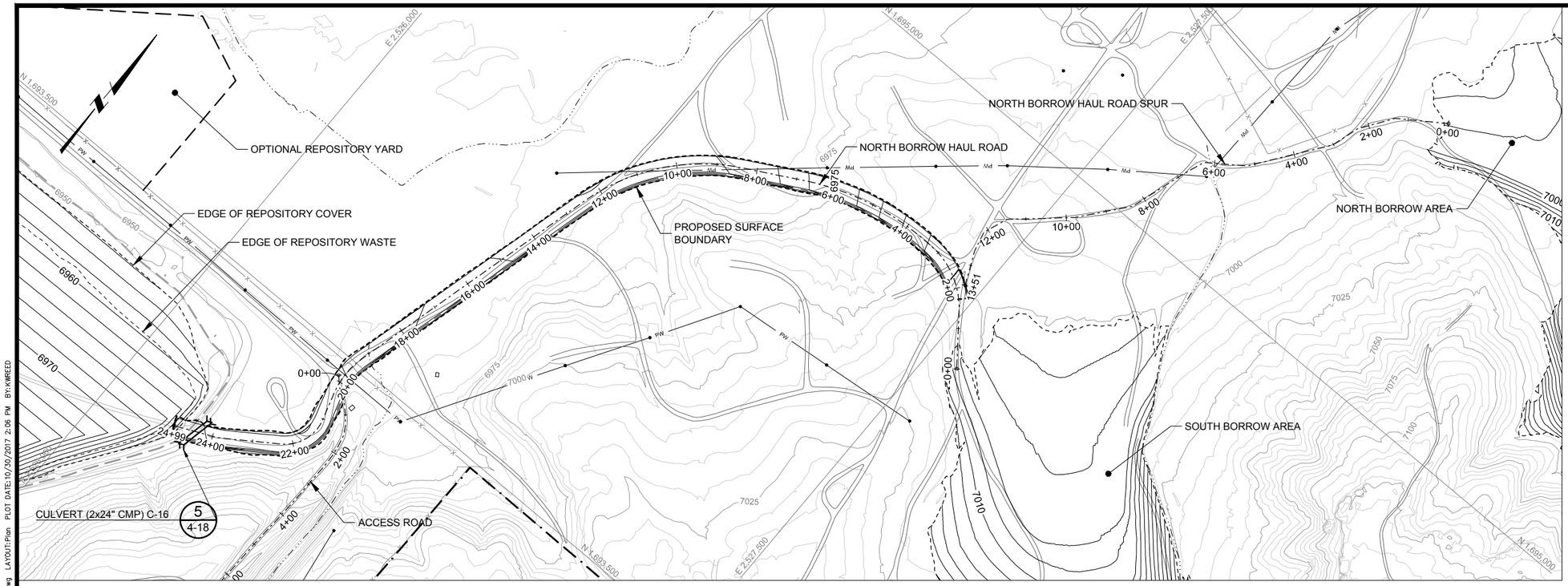
UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
EAST BORROW HAUL ROAD PLAN AND PROFILE

SHEET
4-15
233001048



NORTH BORROW HAUL ROAD AND SPUR PLAN VIEW
STATION 0+00 TO 24+99

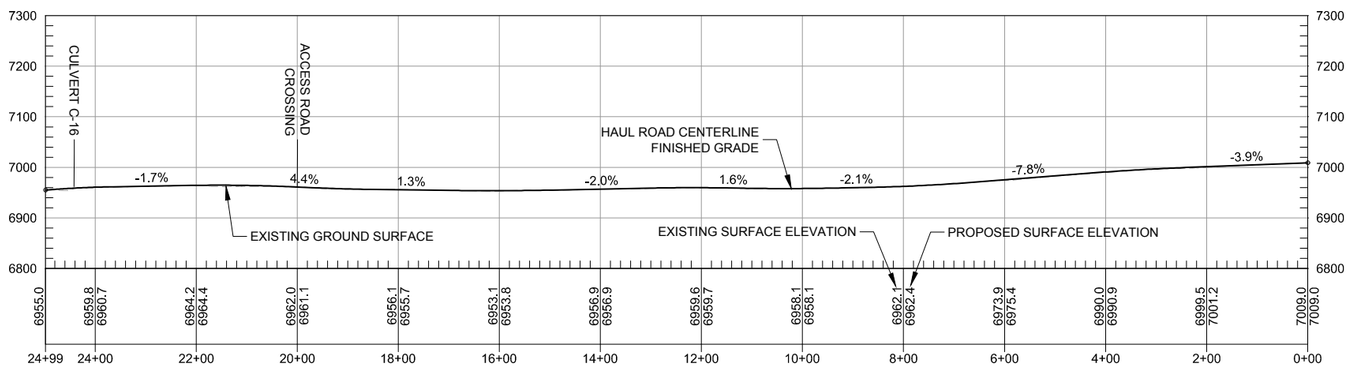
SCALE IN FEET: 0, 150, 300

LEGEND:

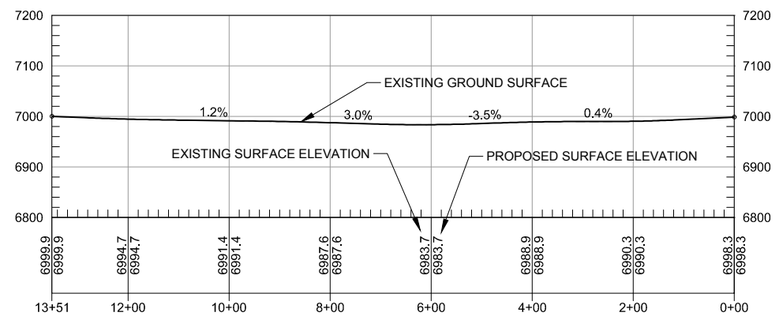
- EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- PROPOSED SURFACE CONTOUR & ELEVATION, FEET
- UNC PROPERTY BOUNDARY
- LIMITS OF TAILINGS DISPOSAL AREA
- POWER LINES
- NATURAL DRAINAGE
- CULVERT

NOTE(S):

1. BORROW HAUL ROUTES ON THE EXISTING TDA COVER TO BE DESIGNATED BY CONTRACTOR.
2. TDA COVER BENEATH DESIGNATED HAUL ROUTES SHALL BE RECONSTRUCTED UPON COMPLETION OF CONSTRUCTION TO MITIGATE DAMAGE FROM HAUL TRAFFIC.
3. THE NORTH BORROW HAUL ROAD TERMINATES AT THE BORROW AREA ENTRANCE, WHERE IT WILL BE SUBJECT TO FIELD GRADING DURING BORROW EXCAVATION.



NORTH BORROW HAUL ROAD PROFILE
STATION 0+00 TO 24+99



NORTH BORROW HAUL ROAD SPUR PROFILE
STATION 0+00 TO 12+69

HORZ 0, 150, 300
VERT 0, 150, 300
SCALE IN FEET

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CHECKED J COLEMAN
APPROVED J CUMBERS

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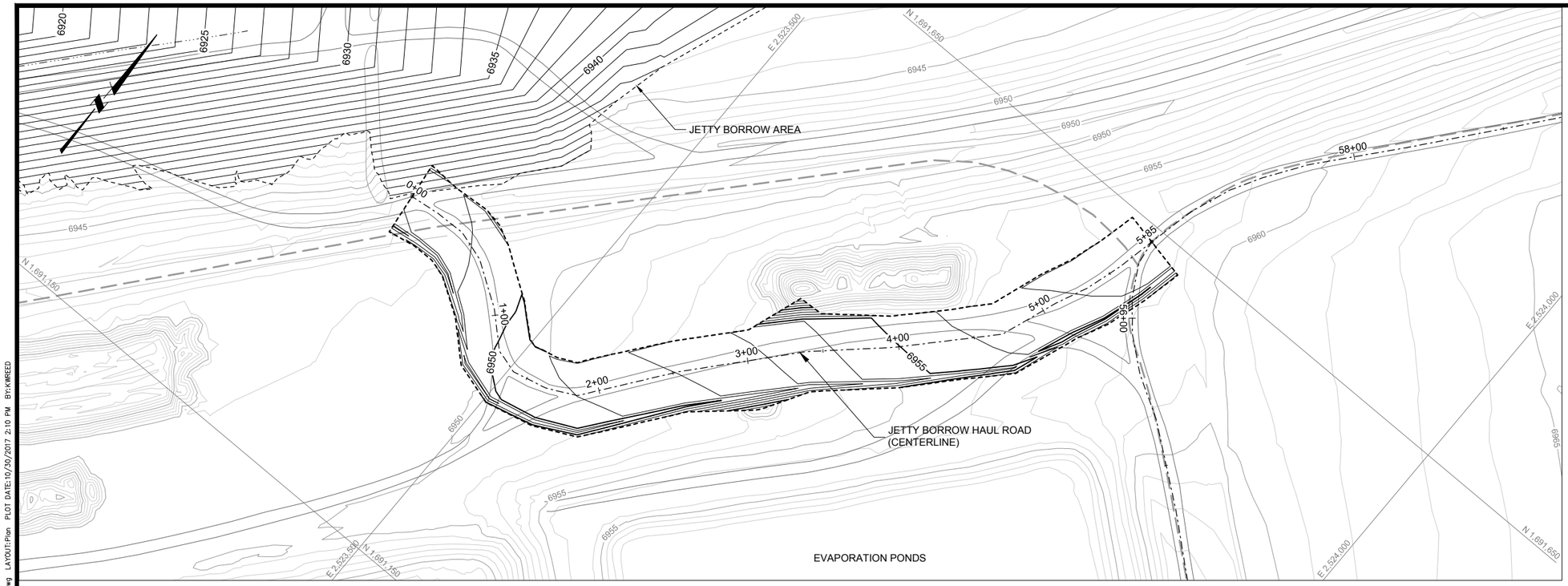
UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
NORTH BORROW HAUL ROAD PLAN AND PROFILE

SHEET 4-16

233001048



LEGEND:

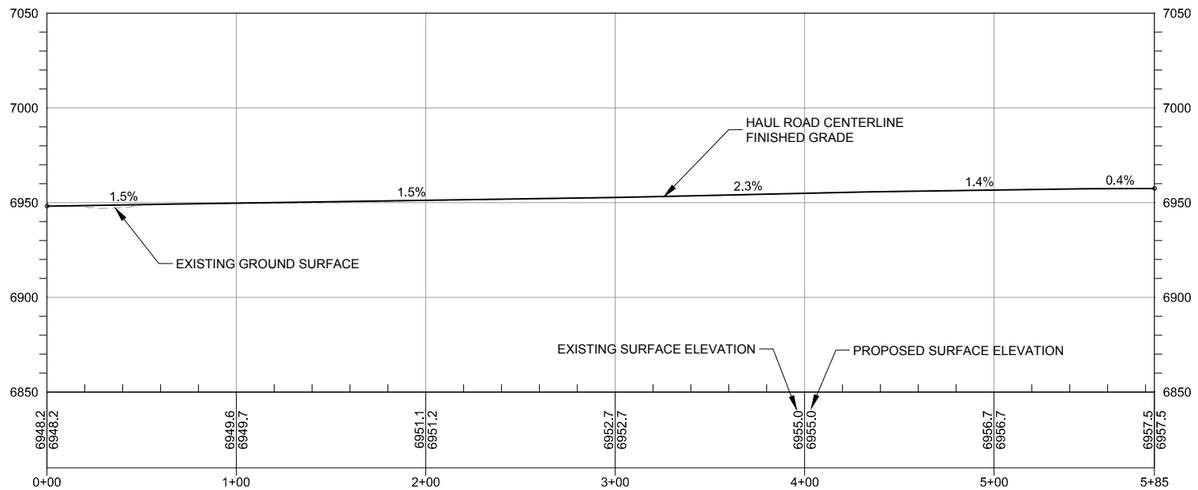
- EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- PROPOSED SURFACE CONTOUR & ELEVATION, FEET
- LIMITS OF TAILINGS DISPOSAL AREA
- POWER LINES
- NATURAL DRAINAGE

NOTE(S):

1. BORROW HAUL ROUTES ON THE EXISTING TDA COVER TO BE DESIGNATED BY CONTRACTOR.
2. TDA COVER BENEATH DESIGNATED HAUL ROUTES SHALL BE RECONSTRUCTED UPON COMPLETION OF CONSTRUCTION TO MITIGATE DAMAGE FROM HAUL TRAFFIC.
3. THE NORTH BORROW HAUL ROAD TERMINATES AT THE BORROW AREA ENTRANCE, WHERE IT WILL BE SUBJECT TO FIELD GRADING DURING BORROW EXCAVATION.

JETTY BORROW HAUL ROAD PLAN VIEW
STATION 0+00 TO 24+99

0 40 80
SCALE IN FEET



JETTY BORROW HAUL ROAD PROFILE
STATION 0+00 TO 5+85

HORZ 0 40 80
VERT 0 40 80
SCALE IN FEET

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B	10/30/17	KR	ISSUED FOR 95% DESIGN

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CHECKED J COLEMAN
APPROVED J CUMBERS

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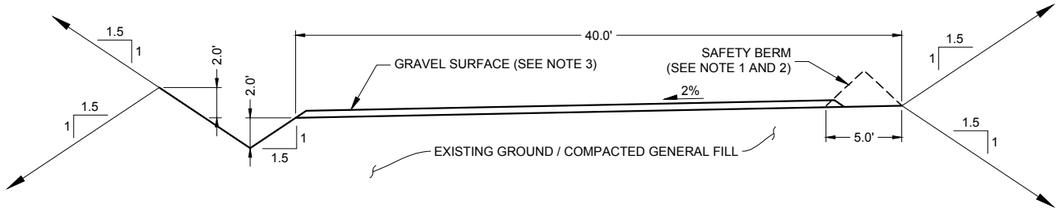
UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

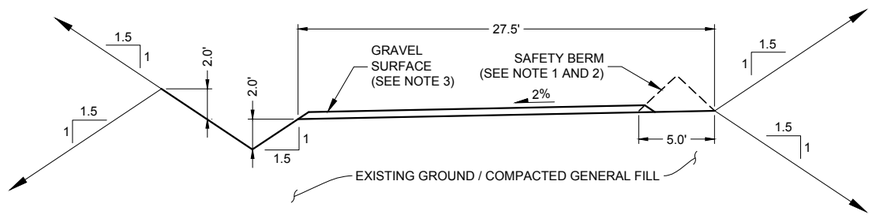
NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
JETTY BORROW HAUL ROAD PLAN AND PROFILE

SHEET
4-17
233001048

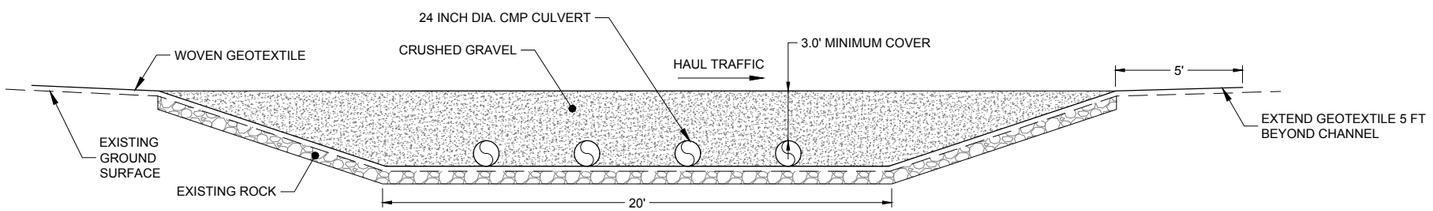
pw:\\amerpwint03.mwhglobal.com:AM_PROJECTS02\Documents_General Electric\GE NECR Design\Civil\Sheet Sets\NECR-95%_DESIGN_DRAWINGS\04-HAUL_ROUTES\NECR 4-17 BORROW HAUL RD 4.dwg LAYOUT:Plan PLOT DATE:10/30/2017 2:10 PM BY:KWREED



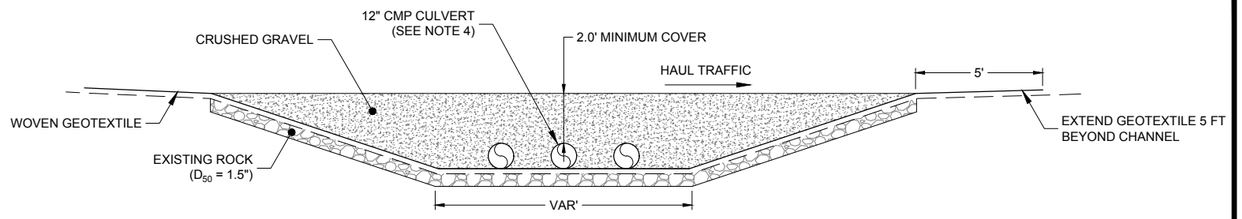
1 / 4-18 TWO-LANE ROAD TYPICAL CROSS SECTION
HAUL AND ACCESS ROADS



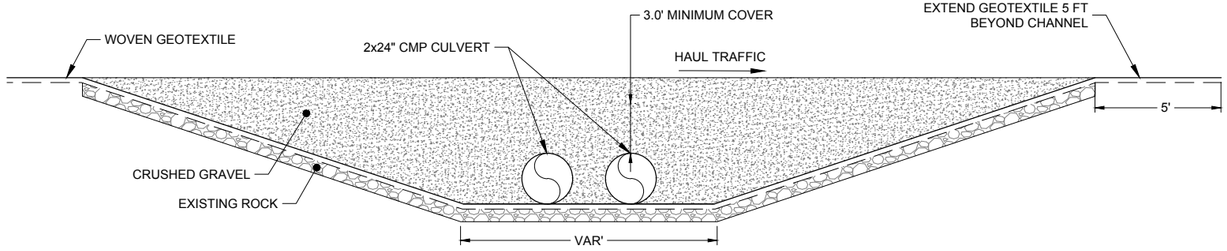
2 / 4-18 ONE-LANE ROAD TYPICAL CROSS SECTION
HAUL AND ACCESS ROADS



3 / 4-18 PIPELINE ARROYO CROSSING DETAIL



4 / 4-18 TYPICAL BRANCH SWALE CROSSING DETAIL



5 / 4-18 MILL SITE TYPICAL BORROW ROAD CROSSING

NOTES:

1. SAFETY BERM SHALL BE PROVIDED WHERE A DROPOFF EXISTS OF SUFFICIENT GRADE OR DEPTH TO CAUSE A VEHICLE TO OVERTURN OR ENDANGER THE OPERATOR.
2. SAFETY BERM SHALL BE MID-AXLE HEIGHT OF LARGEST EQUIPMENT THAT TRAVELS THE ROAD.
3. 4-INCH THICK LAYER OF GRAVEL SURFACING SHALL BE ADDED WHERE NOTED IN SPECIFICATIONS.
4. BRANCH SWALE CROSSINGS USE EITHER THREE OR FOUR 12" CMP CULVERTS. SEE SHEET 4-15 FOR NUMBER OF CULVERTS

TABLE CULVERT DESIGN PARAMETERS

CULVERT ID	APPROXIMATE STATION (FT)	DESIGN DIAMETER (INCH)	NUMBER OF PIPE(S)	MINIMUM SLOPE (FT/FT)
C-01	2+20	24	1	1.75%
C-02	5+50	24	3	1.75%
C-03	10+90	24	1	1.75%
C-04	14+50	24	1	1.75%
C-05	23+80	24	1	1.75%
C-06	30+20	24	1	1.75%
C-07	9+40 (Spur)	24	1	1.75%
C-08	2+50 (Spur)	24	1	1.75%
C-09	0+30 (Spur)	24	3	1.75%
C-10	36+50	24	1	1.75%
C-11	44+80	24	4	0%
C-12	48+40	24	3	0%
C-13	5+38 (East Borrow Road)	12	4	1.75%
C-14	4+30 (East Borrow Road)	12	3	1%
C-15	0+50 (East Borrow Road)	24	2	1.75%
C-16	24+50 (North Borrow Road)	24	2	1.75%

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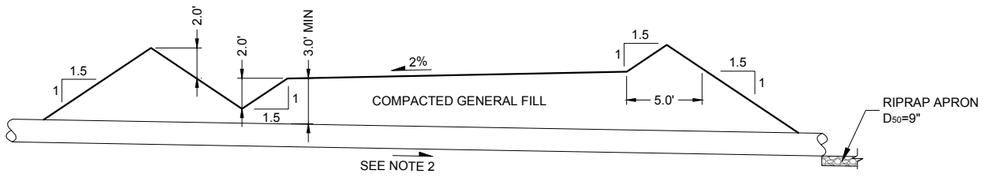
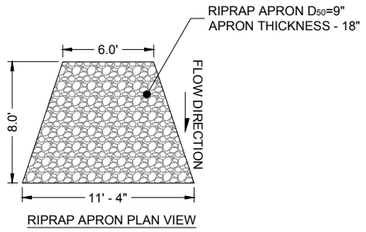
UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

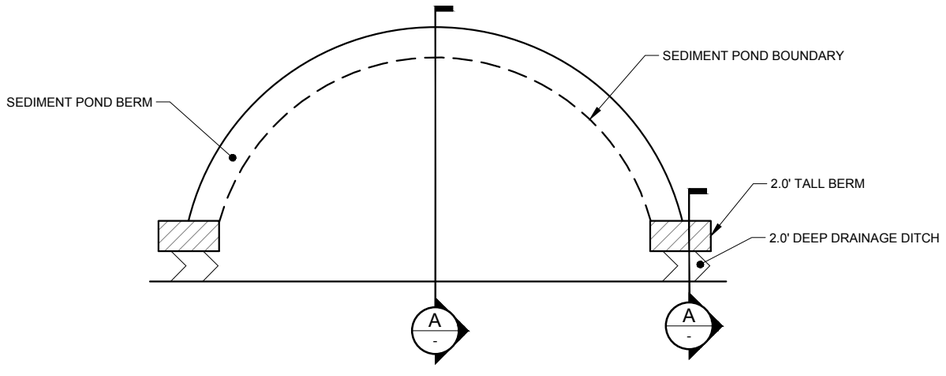
NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
TYPICAL CROSS SECTIONS AND DETAILS

SHEET
4-18
233001048

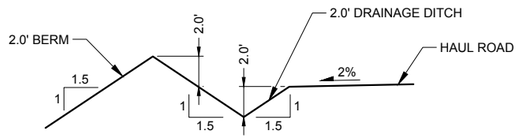




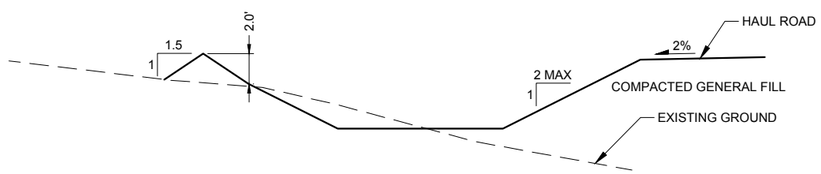
6 / 4-19 HAUL ROAD CULVERT CROSSING TYPICAL CROSS SECTION



- / - PLAN VIEW

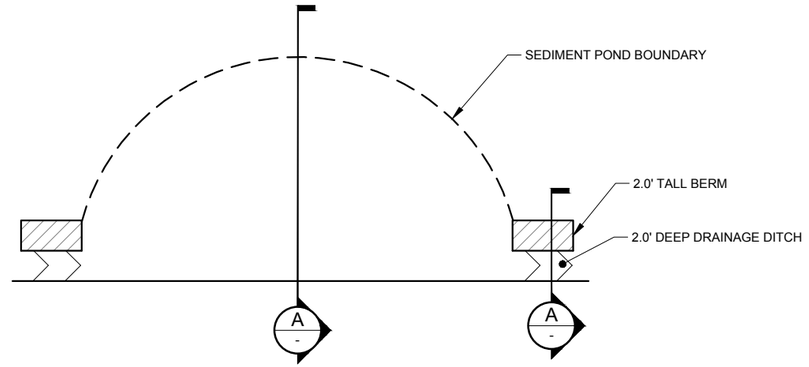


A / - SECTION

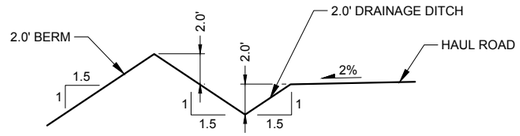


B / - SECTION

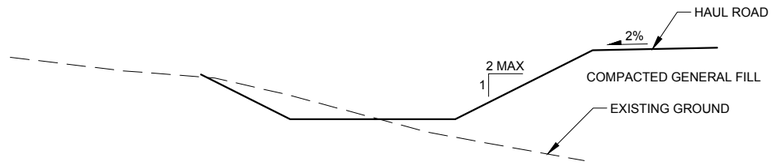
7 / 4-19 TYPICAL STORMWATER POND WITH BERM



- / - PLAN VIEW

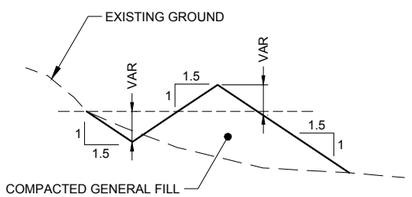


A / - SECTION



B / - SECTION

8 / 4-19 TYPICAL STORMWATER POND WITHOUT BERM



9 / 4-19 TYPICAL DIVERSION BERM

NOTE(S):

1. RAISE HAUL ROAD TO ACCOMMODATE 3.0' MINIMUM COVER OVER CULVERT PIPES AND ALLOW CULVERT TO BE LAID AS CLOSE AS POSSIBLE TO EXISTING TERRAIN WHILE MAINTAINING THE MINIMUM SLOPE.
2. SEE TABLE FOR CULVERT SIZING, NUMBER OF PIPES, AND MINIMUM CULVERT SLOPES (SHEET 4-18).
3. SEE SHEET 4-11 FOR TABLE WITH STORMWATER POND SIZING.
4. SEE HAUL ROAD PLAN SHEETS FOR EACH DIVERSION BERM HEIGHT.

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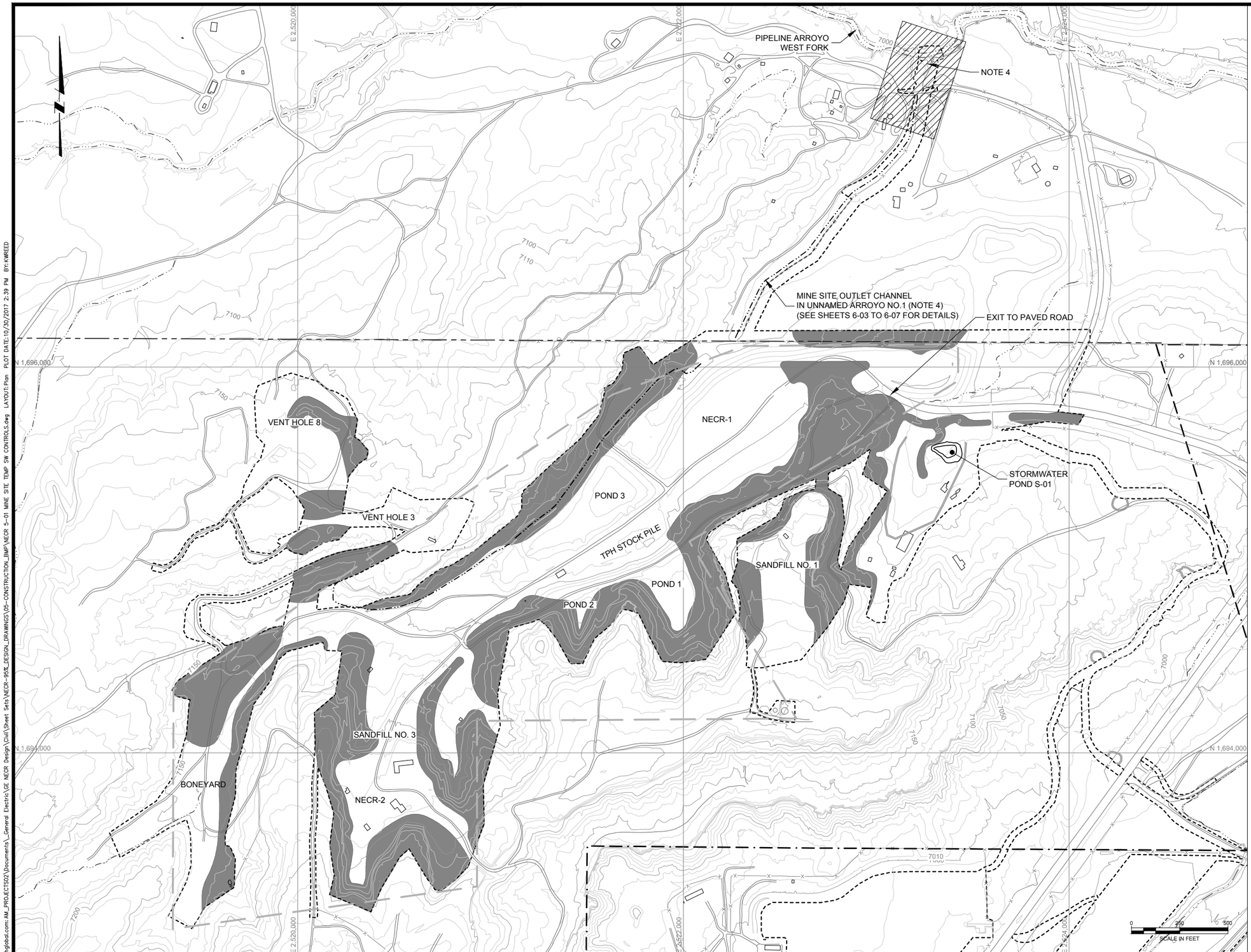
McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
TYPICAL CROSS SECTIONS AND DETAILS

SHEET
4-19
233001048



LEGEND:

- 7200 — EXISTING GROUND SURFACE ELEVATION CONTOUR, FEET
- 7200 — EXISTING GROUND SURFACE ELEVATION CONTOUR, FEET (REMOVAL AREA)
- NECR MINE PERMIT BOUNDARY
- CHURCH ROCK MILL SITE BOUNDARY
- EXISTING STORMWATER CHANNELS
- LIMITS OF DISTURBANCE
- DISTURBED SLOPE AREA
- DESIGN SLOPES - <25%
- DESIGN SLOPES - 25% - >50%

NOTE(S):

1. SEE SECTION 3 DRAWINGS FOR DETAILS AND PHASES TO INSTALL AND REMOVE TEMPORARY CONTROLS DURING EXCAVATION.
2. STABILIZE DISTURBED SLOPES FOLLOWING REMOVAL ACTIVITIES OR WHERE SLOPE WILL NOT HAVE WORK PERFORMED FOR A PERIOD OF 14 DAYS OR MORE. APPLY MULCH AND/OR EROSION CONTROL MATS AS NEEDED UNTIL VEGETATION IS ESTABLISHED.
3. INSTALL BMPS PER CONTRACTORS APPROVED CSWPP. SEE DESIGN REPORT FOR BMP CATALOG.
4. UNNAMED ARROYOS ARE WATERS OF THE U.S. PROTECT DISTURBED AREAS FROM RILLING AND SEDIMENT LOSS USING STRAW WATTLES, SILT FENCES, DIVERSIONS AND OTHER BMP'S AS REQUIRED. STABILIZE DISTURBED AREAS THAT WILL NOT BE WORKED FOR 14 DAYS OR LONGER.

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B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	JTV	ISSUED FOR 30% DESIGN

DESIGNED J ERICKSON
CHECKED N HAWS
APPROVED J CUMBERS

MWH. now part of Stantec

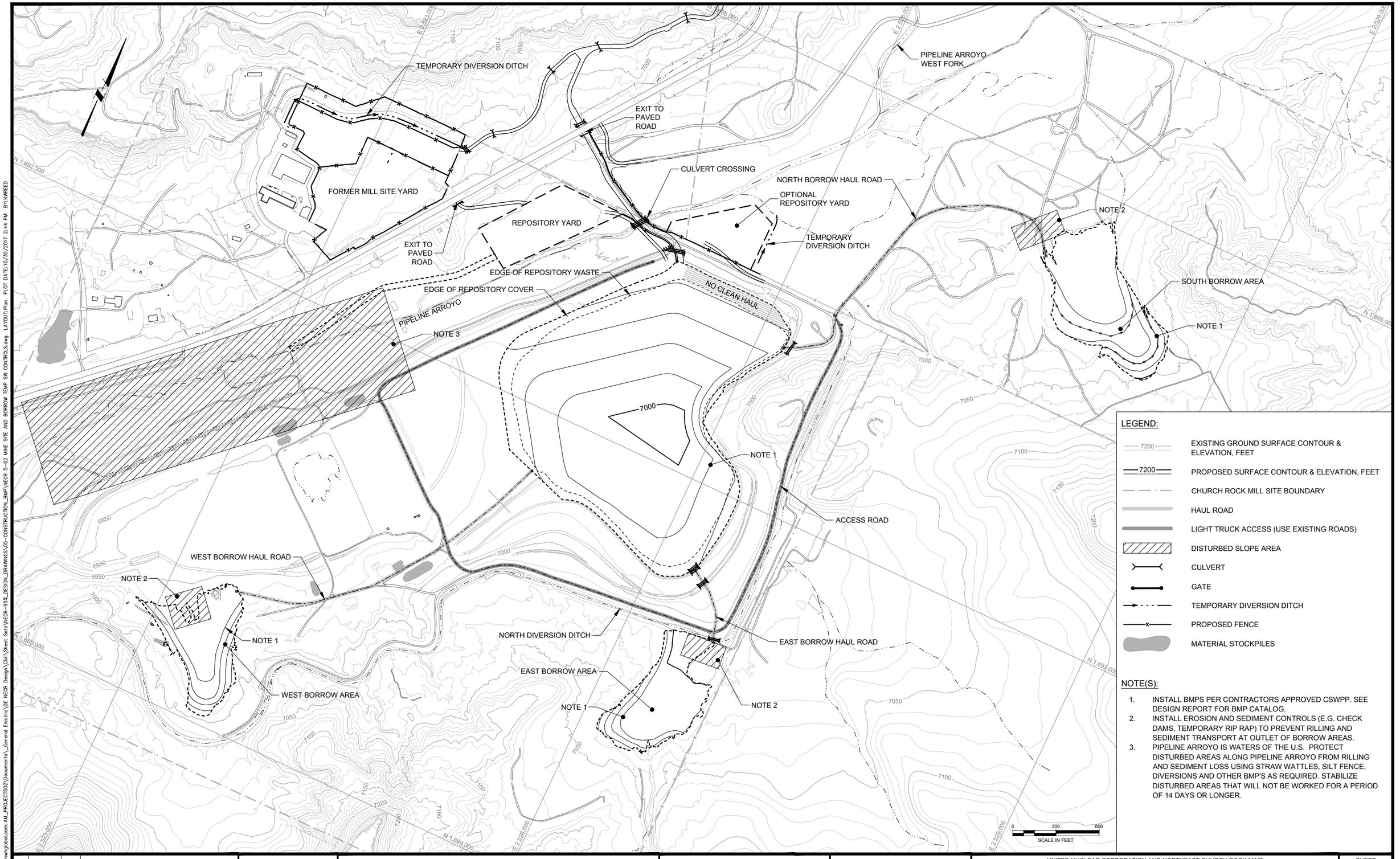
UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MINE SITE TEMPORARY STORMWATER CONTROLS

SHEET 5-01

233001048

pw:\\amerpwint03.mwhglobal.com:AM_PRO:ECTS02:Documents_General Electric\GE NECR Design\Civil\Sheet Sets\NECR-95%_DESIGN_DRAWINGS\05-CONSTRUCTION_BMP\NECR 5-01 MINE SITE TEMP SW CONTROLS.dwg LAYOUT:Plan PLOT DATE:10/30/2017 2:39 PM BY:KWREED



LEGEND:

- EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET (7200)
- PROPOSED SURFACE CONTOUR & ELEVATION, FEET (7200)
- CHURCH ROCK MILL SITE BOUNDARY
- HAUL ROAD
- LIGHT TRUCK ACCESS (USE EXISTING ROADS)
- DISTURBED SLOPE AREA
- CULVERT
- GATE
- TEMPORARY DIVERSION DITCH
- PROPOSED FENCE
- MATERIAL STOCKPILES

NOTE(S):

1. INSTALL BMPS PER CONTRACTORS APPROVED CSWPP. SEE DESIGN REPORT FOR BMP CATALOG.
2. INSTALL EROSION AND SEDIMENT CONTROLS (E.G. CHECK DAMS, TEMPORARY RIP RAP) TO PREVENT RILLING AND SEDIMENT TRANSPORT AT OUTLET OF BORROW AREAS.
3. PIPELINE ARROYO IS WATERS OF THE U.S. PROTECT DISTURBED AREAS ALONG PIPELINE ARROYO FROM RILLING AND SEDIMENT LOSS USING STRAW WATTLES, SILT FENCE, DIVERSIONS AND OTHER BMP'S AS REQUIRED. STABILIZE DISTURBED AREAS THAT WILL NOT BE WORKED FOR A PERIOD OF 14 DAYS OR LONGER.

0 300 600
SCALE IN FEET

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	JTV	ISSUED FOR 30% DESIGN

DESIGNED J ERICKSON
CHECKED N HAWS
APPROVED J CUMBERS

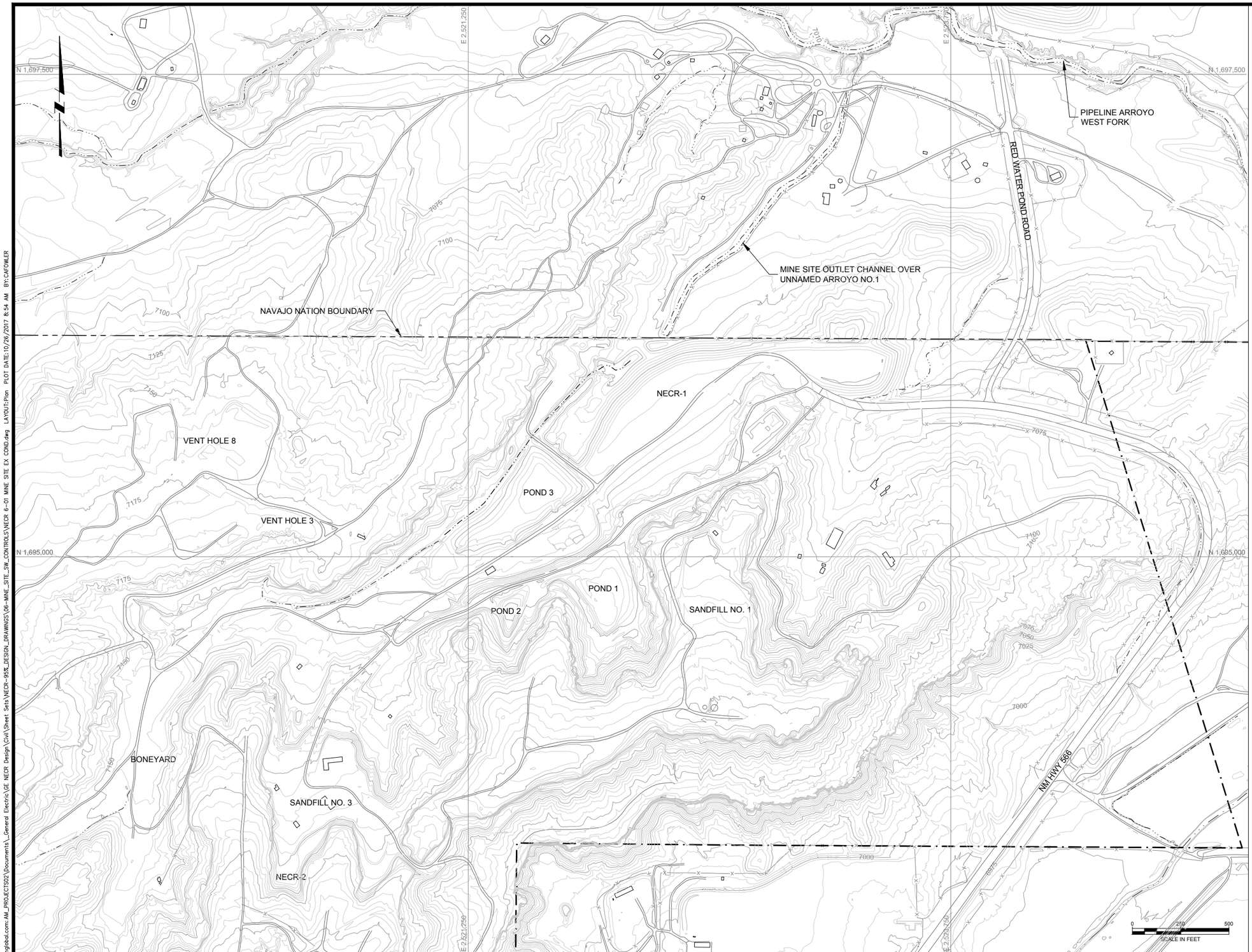
MWH. now part of Stantec

UNC GE

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MILL SITE AND BORROW AREAS TEMPORARY STORMWATER CONTROLS

SHEET
5-02
233001048



LEGEND:

- EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- UNC PROPERTY BOUNDARY
- APPROXIMATE NAVAJO NATION BOUNDARY
- ROADS
- NATURAL DRAINAGE
- EXISTING FENCE

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	RW	ISSUED FOR 30% DESIGN

DESIGNED J ERICKSON
CHECKED N HAWS
APPROVED J CUMBERS

MWH. now part of Stantec

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO
NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MINE SITE STORMWATER CONTROLS
EXISTING CONDITION

SHEET
6-01
233001048

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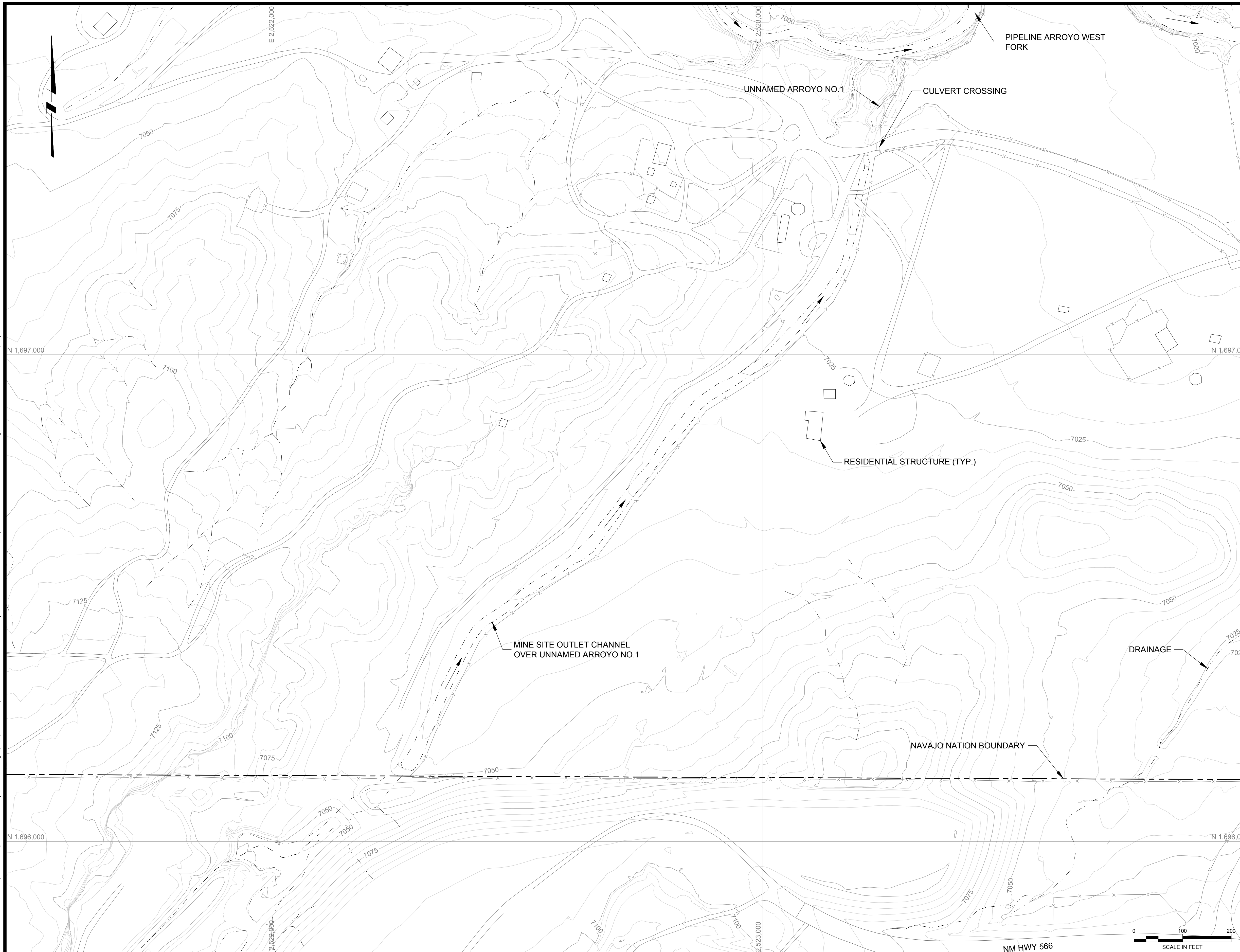


LEGEND:

7200	EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
	APPROXIMATE NAVAJO NATION BOUNDARY
	ROADS
	NATURAL DRAINAGE
x	EXISTING FENCE
	FLOW DIRECTION

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	RW	ISSUED FOR 30% DESIGN

DESIGNED J ERICKSON

CHECKED N HAWS

APPROVED J CUMBERS

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE

McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN

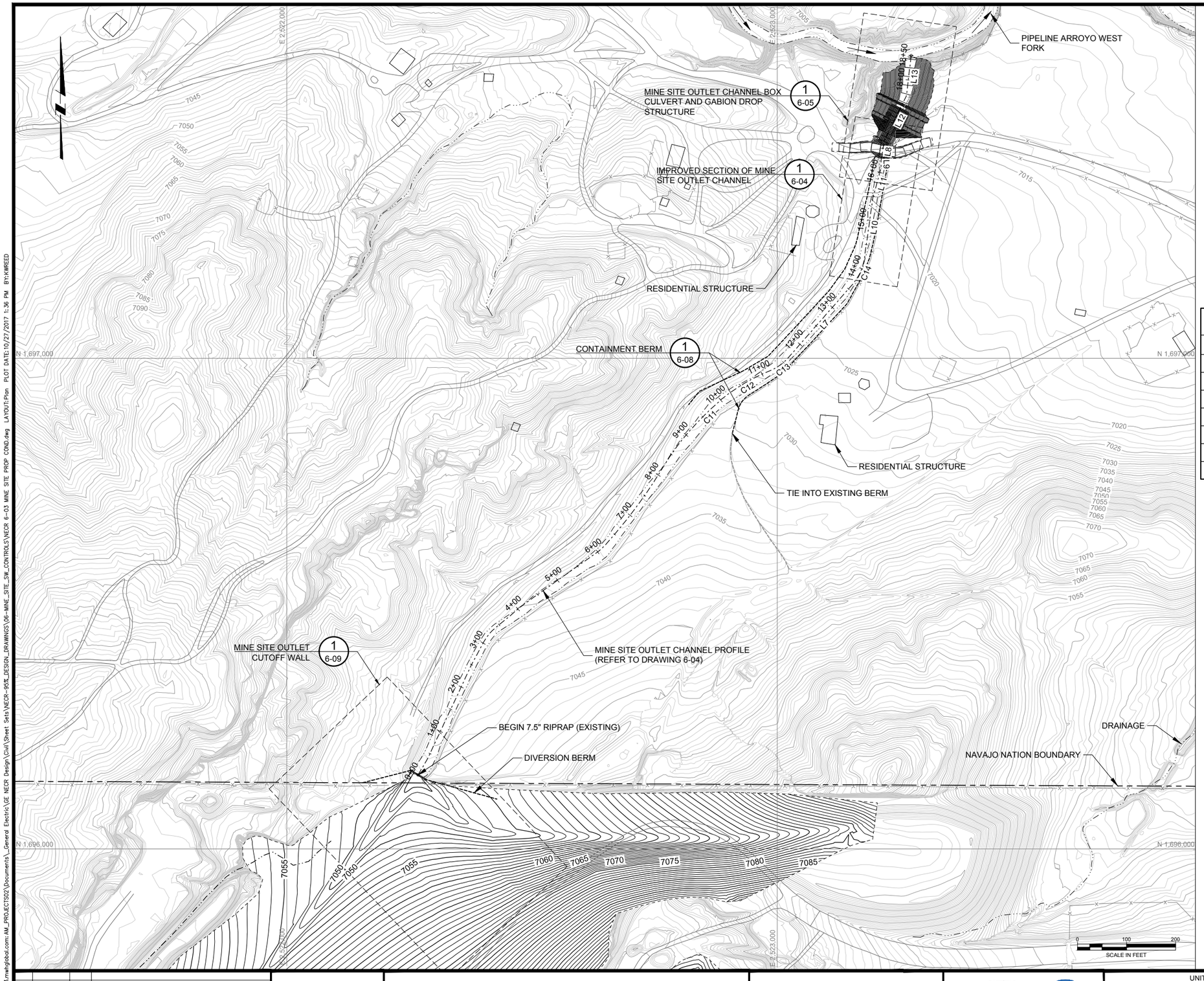
MINE SITE STORMWATER CONTROLS

OUTLET EXISTING CONDITION

SHEET

6-02

233001048



LEGEND:

- 7200 — EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- 7200 — PROPOSED SURFACE CONTOUR & ELEVATION, FEET
- APPROXIMATE NAVAJO NATION BOUNDARY
- ROADS
- NATURAL DRAINAGE
- EXISTING FENCE
- CONTAINMENT BERM
- EXISTING BERM

ALIGNMENT LINE TABLE

LINE NO	LENGTH	DIRECTION	STATION (PT)	START NORTHING	START EASTING
L7	199.24'	N 41°11'42" E	11+64.04	1697001.67	2523022.89
L8	41.74'	N 09°25'33" E	16+24.11	1697402.93	2523211.69
L9	15.01'	N 00°58'48" W	16+09.10	1697387.93	2523211.95
L10	120.13'	N 08°00'09" E	14+26.94	1697209.23	2523178.52
L11	62.03'	N 15°37'16" E	15+47.08	1697328.19	2523195.25
L12	101.40'	N 26°21'01" E	16+65.85	1697444.11	2523218.53
L13	82.75'	N 06°42'42" E	17+67.25	1697534.98	2523263.54

ALIGNMENT CURVE TABLE

CURVE NO	RADIUS	LENGTH	DELTA	CHORD DIRECTION	STATION (PC)
C11	692.39	89.419	7°23'58"	N 45°31'16" E	9+14.33
C12	382.26	113.356	16°59'25"	N 59°35'26" E	10+03.75
C13	100.00	46.933	26°53'27"	N 54°38'25" E	11+17.11
C14	100.00	63.668	36°28'45"	N 22°57'20" E	13+63.28

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	RW	ISSUED FOR 30% DESIGN

DESIGNED J ERICKSON
CHECKED N HAWS
APPROVED J CUMBERS

MWH. now part of Stantec

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO
NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MINE SITE STORMWATER CONTROLS
OUTLET PROPOSED CONDITION

SHEET
6-03
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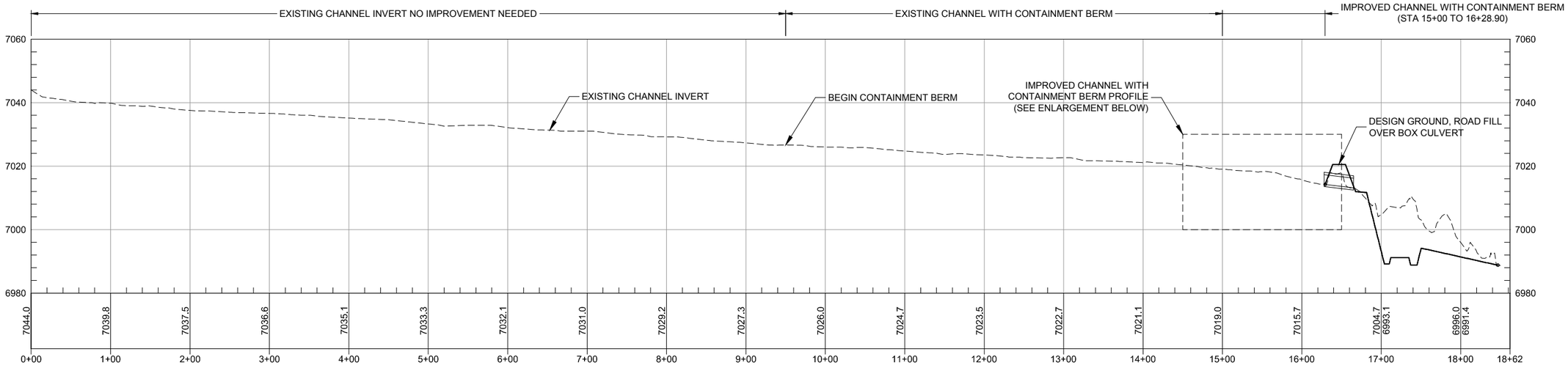
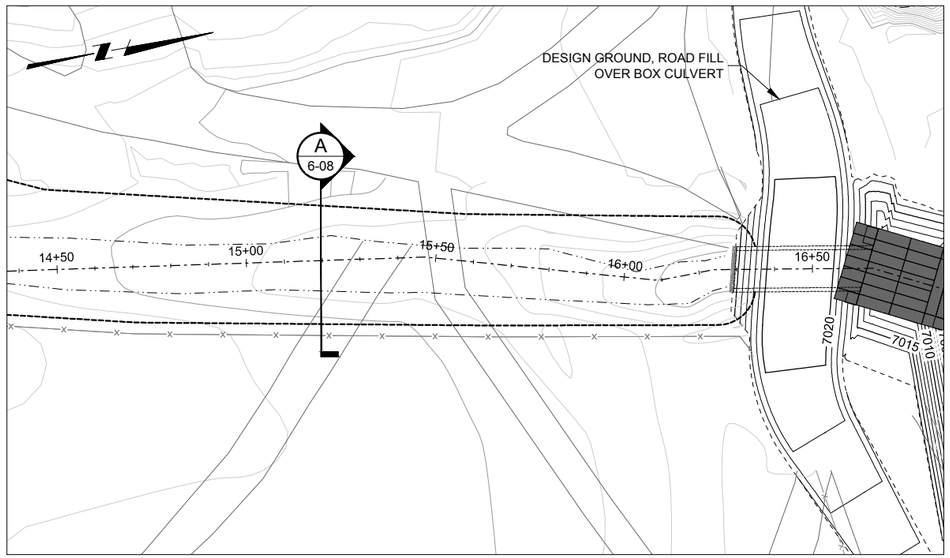


MINE SITE OUTLET CHANNEL PROFILE

HORZ 0 70 140
VERT 0 17.5 35
SCALE IN FEET

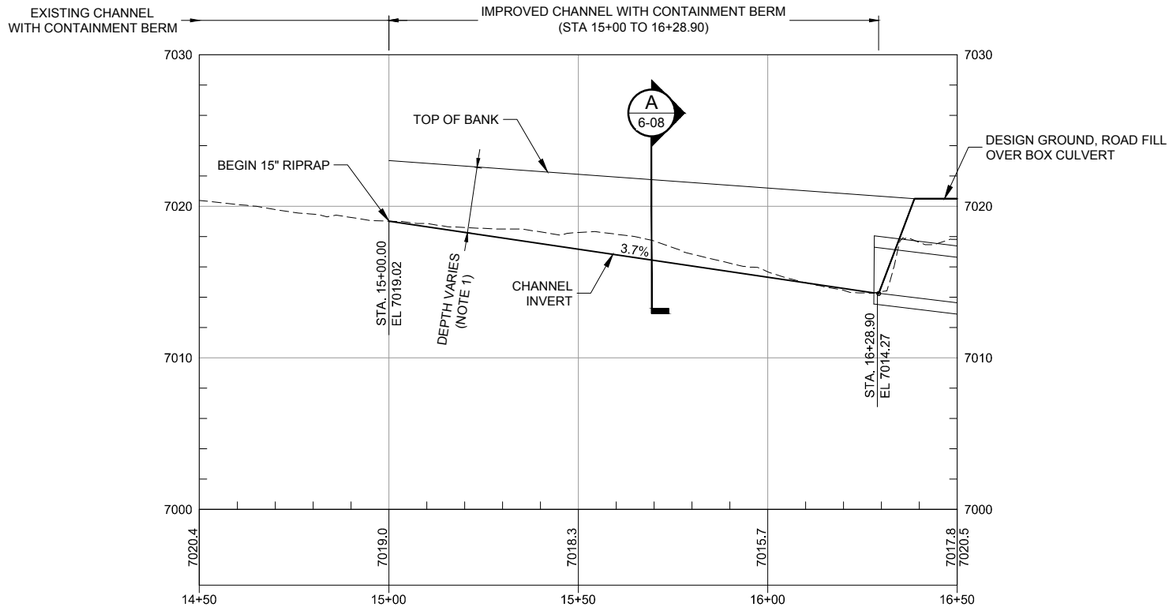
NOTE(S):

1. DEPTH INCREASES GRADUALLY FROM 4.0' AT STA 15+00 TO 6.8' AT STA 16+28.38.



1 / 6-04 IMPROVED SECTION OF MINE SITE OUTLET CHANNEL PLAN
(STA 15+00 TO 16+28.90)

0 20 40
SCALE IN FEET



IMPROVED SECTION OF MINE SITE OUTLET CHANNEL PROFILE

HORZ 0 20 40
VERT 0 5 10
SCALE IN FEET

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	RW	ISSUED FOR 30% DESIGN

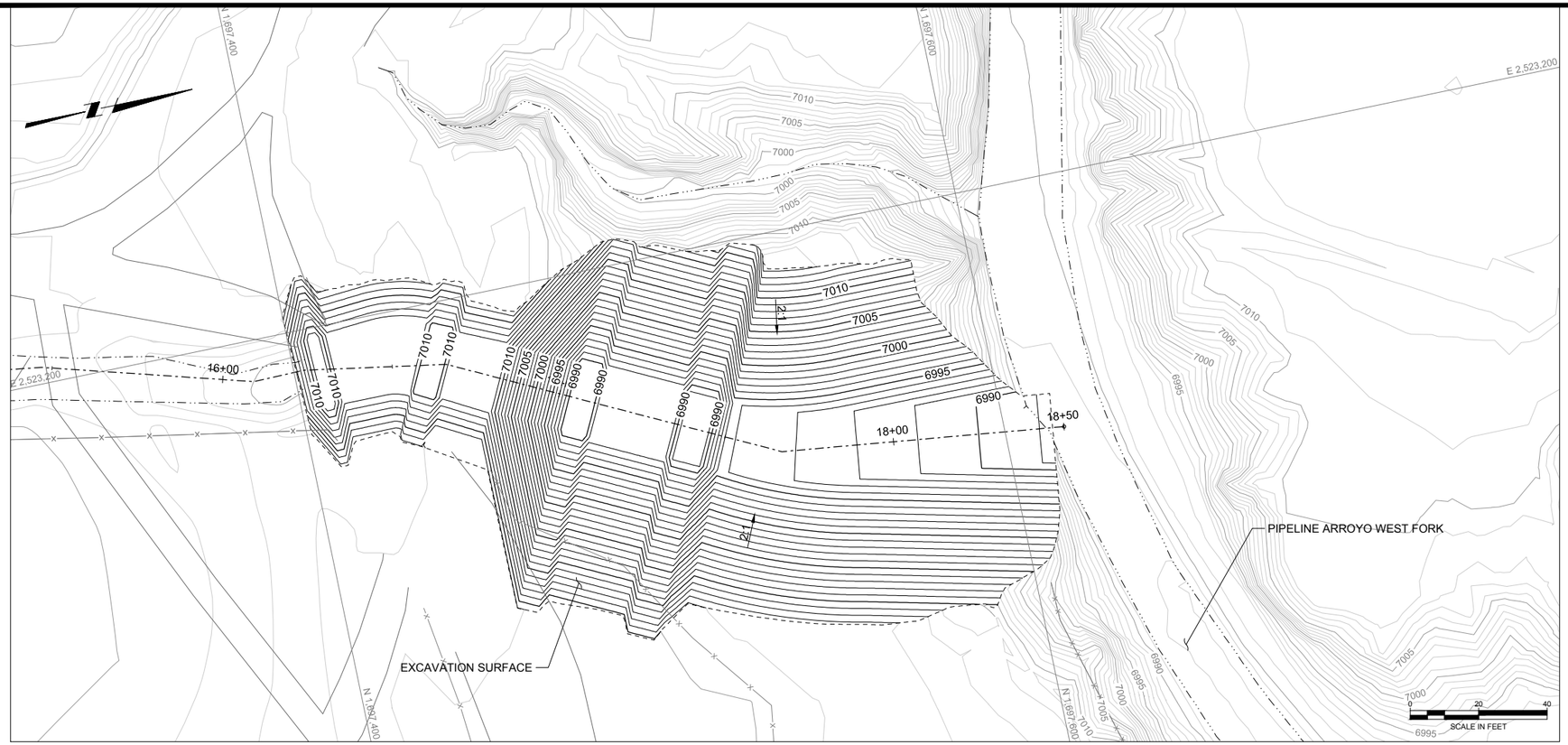
DESIGNED J ERICKSON
CHECKED N HAWS
APPROVED J CUMBERS

MWH. now part of Stantec

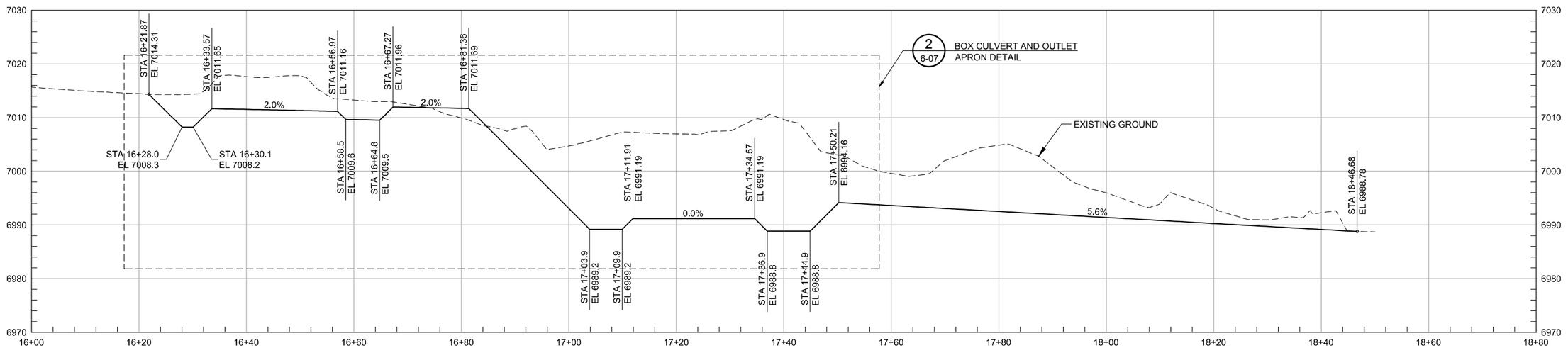
UNC GE

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO
NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MINE SITE STORMWATER CONTROLS
OUTLET CHANNEL PROFILE

SHEET
6-04
233001048



1 / 6-05 MINE SITE OUTLET CHANNEL BOX CULVERT AND GABION DROP STRUCTURE EXCAVATION SURFACE



MINE SITE OUTLET CHANNEL BOX CULVERT AND GABION DROP STRUCTURE EXCAVATION PROFILE

HORZ 0 10 20
VERT 0 10 20
SCALE IN FEET

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	RW	ISSUED FOR 30% DESIGN

DESIGNED J ERICKSON
CHECKED N HAWS
APPROVED J CUMBERS

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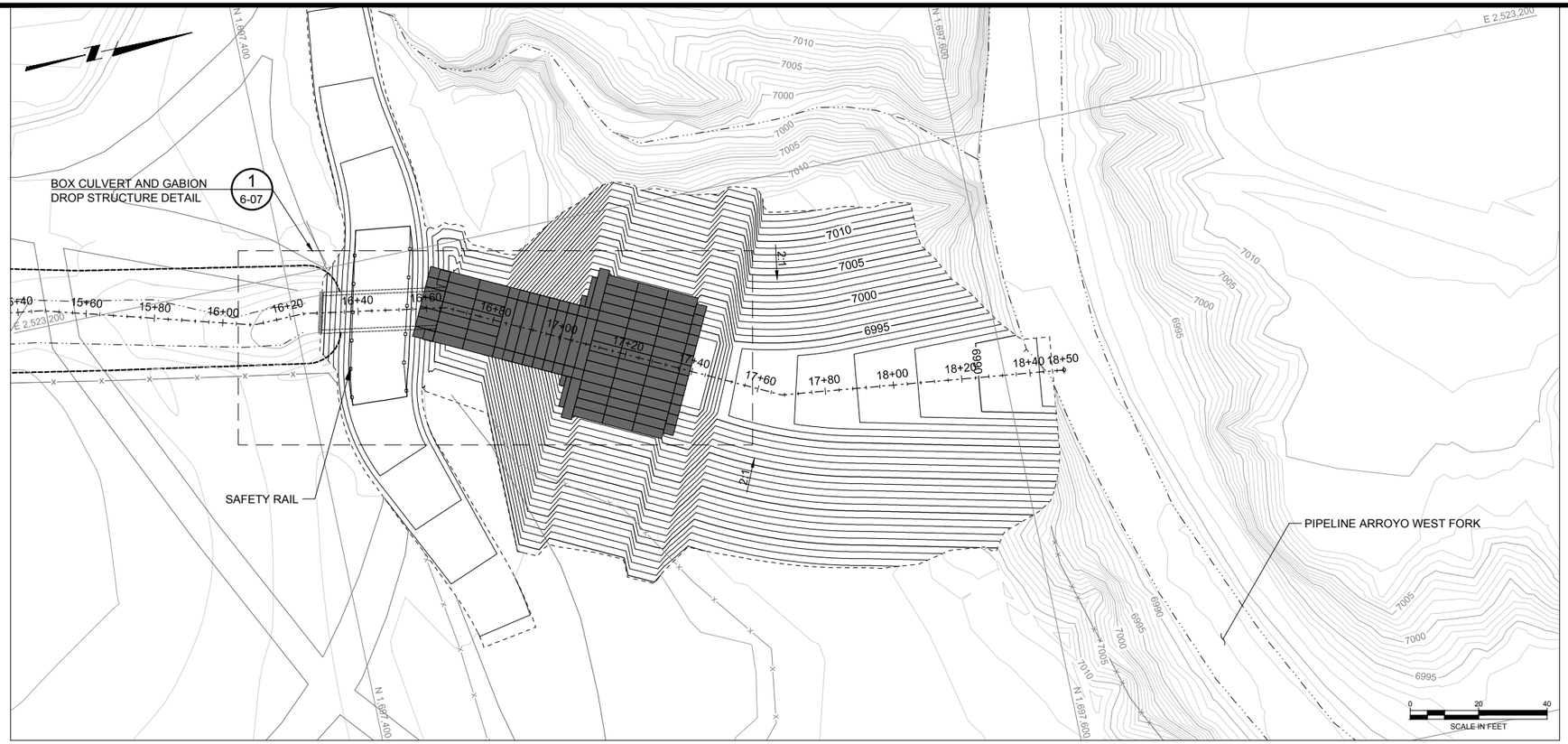
UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO
NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MINE SITE STORMWATER CONTROLS
BOX CULVERT AND GABION DROP STRUCTURE EXCAVATION SURFACE

SHEET 6-05

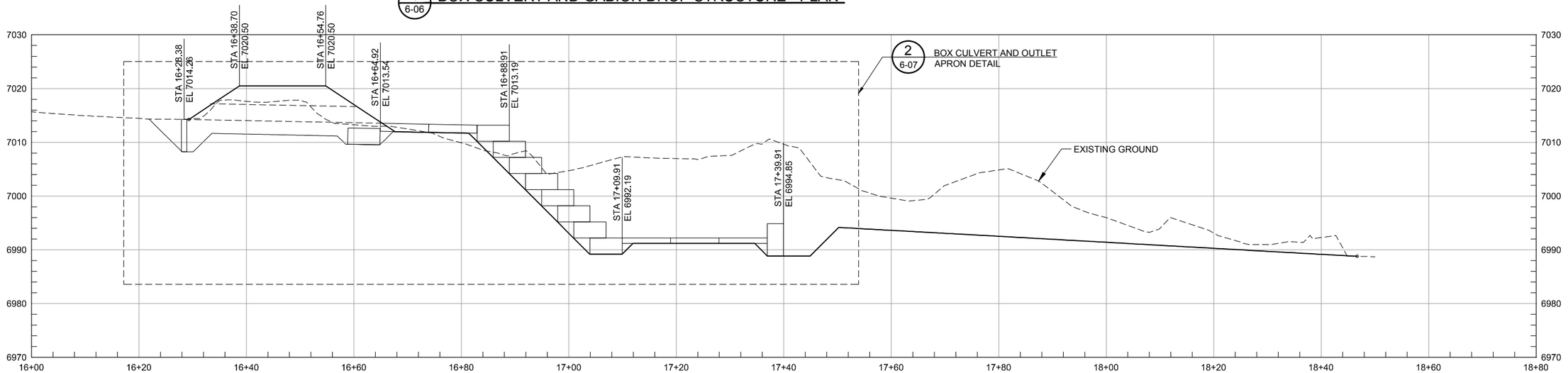
233001048



LEGEND:

- 7200 — EXISTING GROUND SURFACE CONTOURS & ELEVATION, FEET
- 7200 — DESIGN GROUND SURFACE CONTOURS & ELEVATION, FEET
- DRAINAGE CHANNEL
- FENCE

1 6-06 BOX CULVERT AND GABION DROP STRUCTURE - PLAN



BOX CULVERT AND GABION DROP STRUCTURE - PROFILE

HORZ 0 10 20
VERT 0 10 20
SCALE IN FEET

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	RW	ISSUED FOR 30% DESIGN

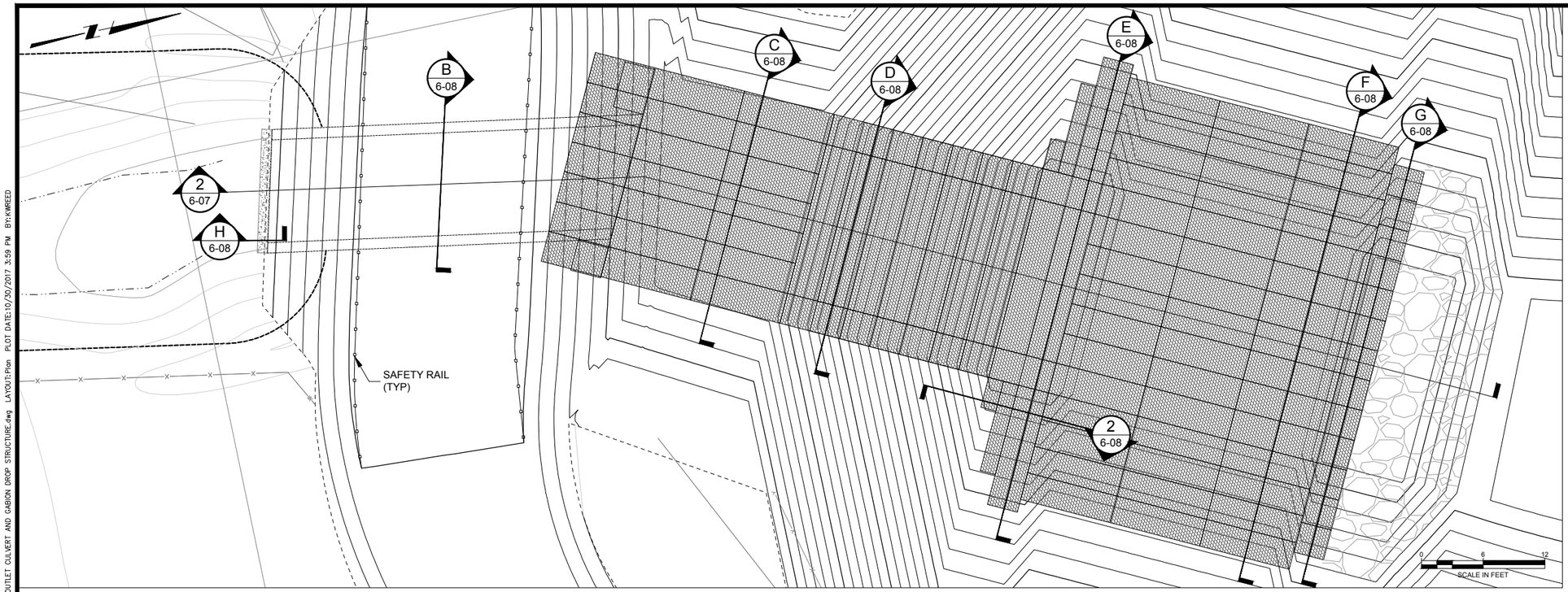
DESIGNED J ERICKSON
CHECKED N HAWS
APPROVED J CUMBERS

MWH. now part of Stantec

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO
NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MINE SITE STORMWATER CONTROLS
CULVERT AND DOWNDRAIN (1 OF 2)

SHEET 6-06

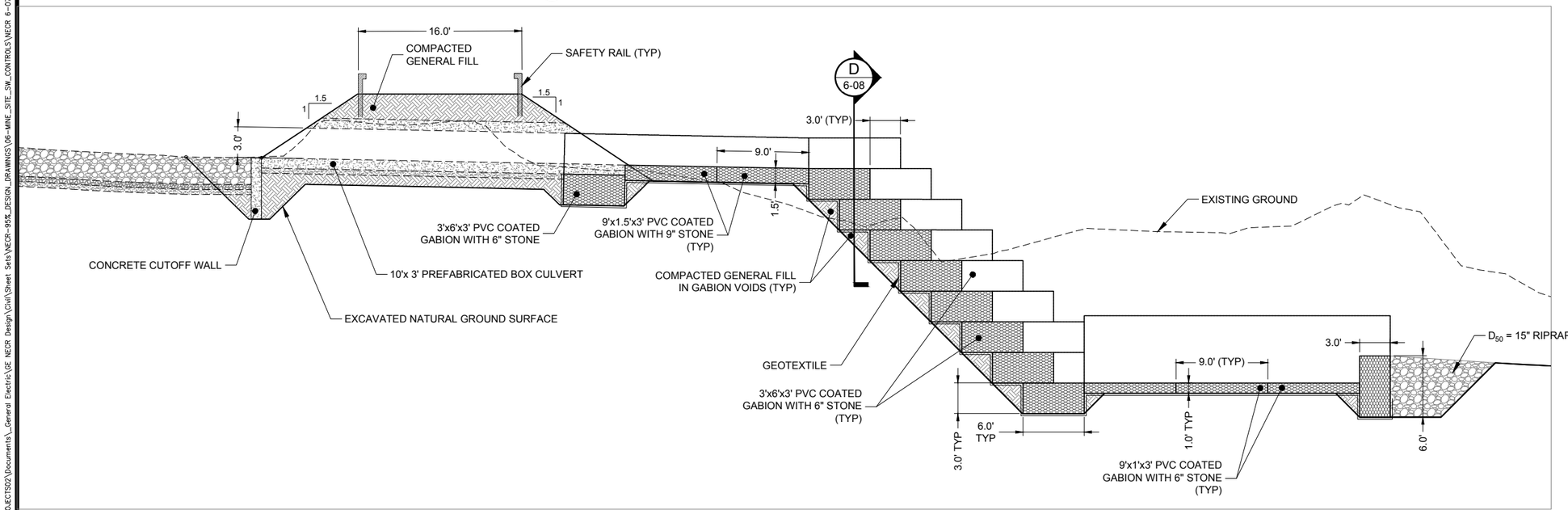
233001048



LEGEND:

- 7200 — EXISTING GROUND SURFACE CONTOURS & ELEVATION, FEET
- 7200 — DESIGN GROUND SURFACE CONTOURS & ELEVATION, FEET
- DRAINAGE CHANNEL
- FENCE

1 6-07 BOX CULVERT AND GABION DROP STRUCTURE DETAIL



2 6-07 BOX CULVERT AND OUTLET APRON DETAIL
NOT TO SCALE

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	RW	ISSUED FOR 30% DESIGN

DESIGNED J ERICKSON
CHECKED N HAWS
APPROVED J CUMBERS

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UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO
NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MINE SITE STORMWATER CONTROLS
CULVERT AND DOWNDRAIN (2 OF 2)

SHEET
6-07
233001048

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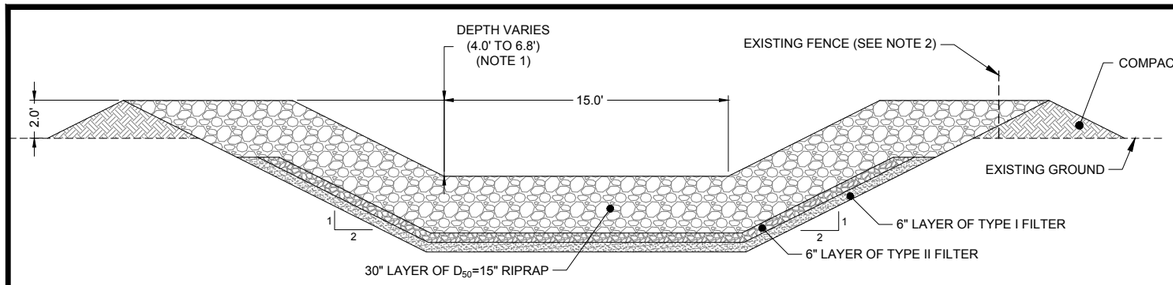
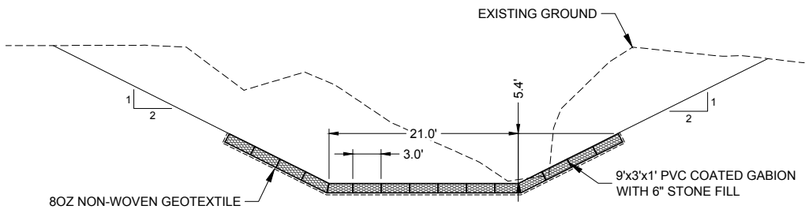
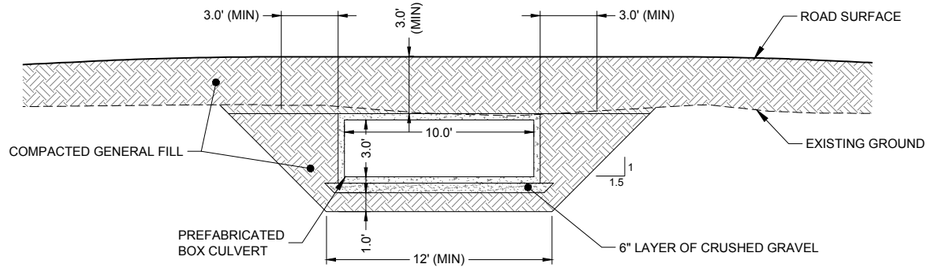


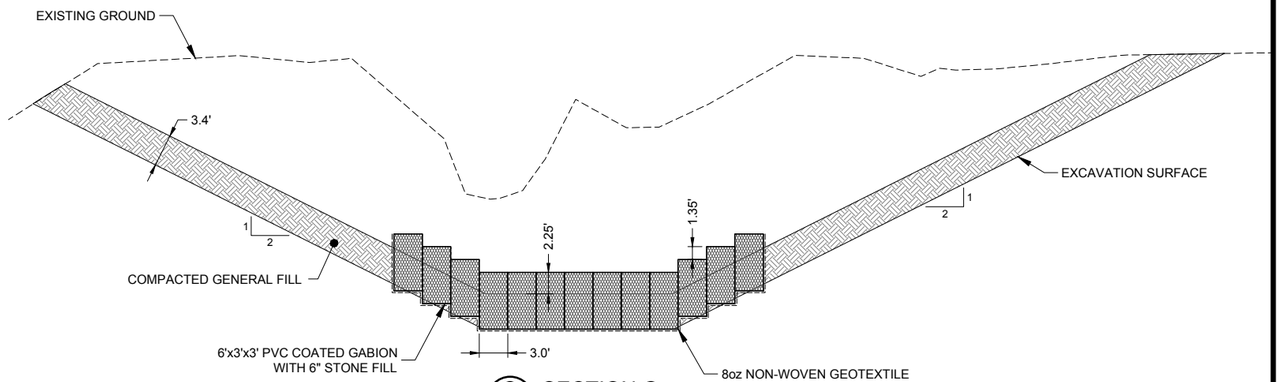
A 6-08 MINE OUTLET CHANNEL STA 15+00 TO STA 16+28.38
NOT TO SCALE



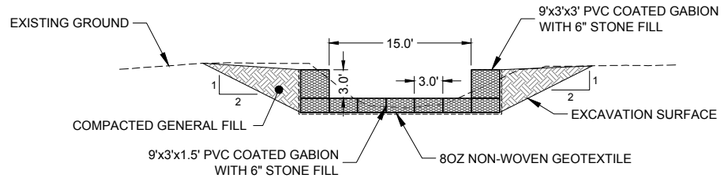
F 6-08 SECTION F
NOT TO SCALE



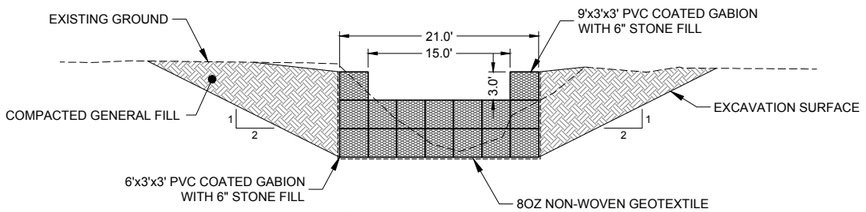
B 6-08 BOX CULVERT SECTION
NOT TO SCALE



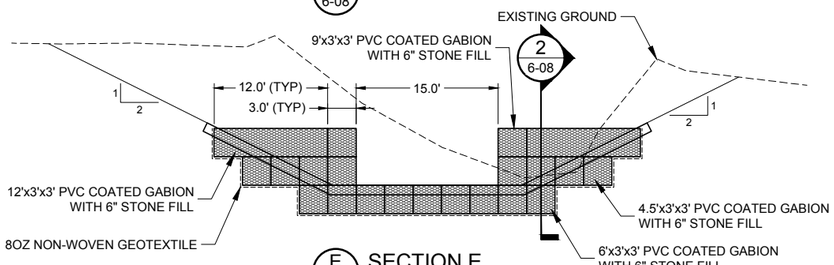
G 6-08 SECTION G



C 6-08 SECTION C



D 6-08 SECTION D



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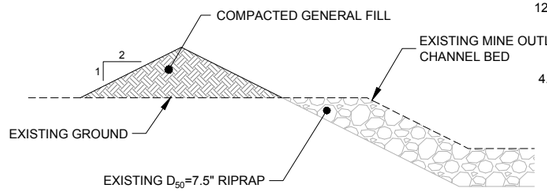
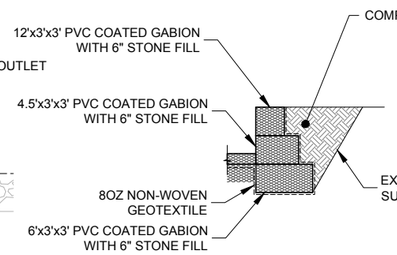
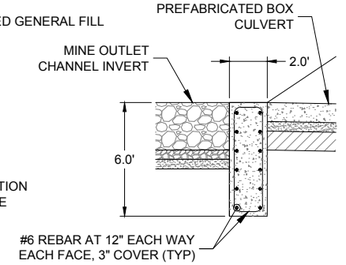


1 6-08 CONTAINMENT BERM DETAIL



2 6-08 DETAIL 2



H 6-8 CONCRETE CUTOFF WALL SECTION

NOTE(S):

1. DEPTH INCREASES GRADUALLY FROM 4.0' AT STA 15+00 TO 6.8' AT STA 16+29.38.
2. RELOCATE EXISTING FENCE JUST OUTSIDE OF THE AREA OF DISTURBANCE WHERE NECESSARY TO INSTALL CHANNEL AND CONTAINMENT BERM FACILITIES.

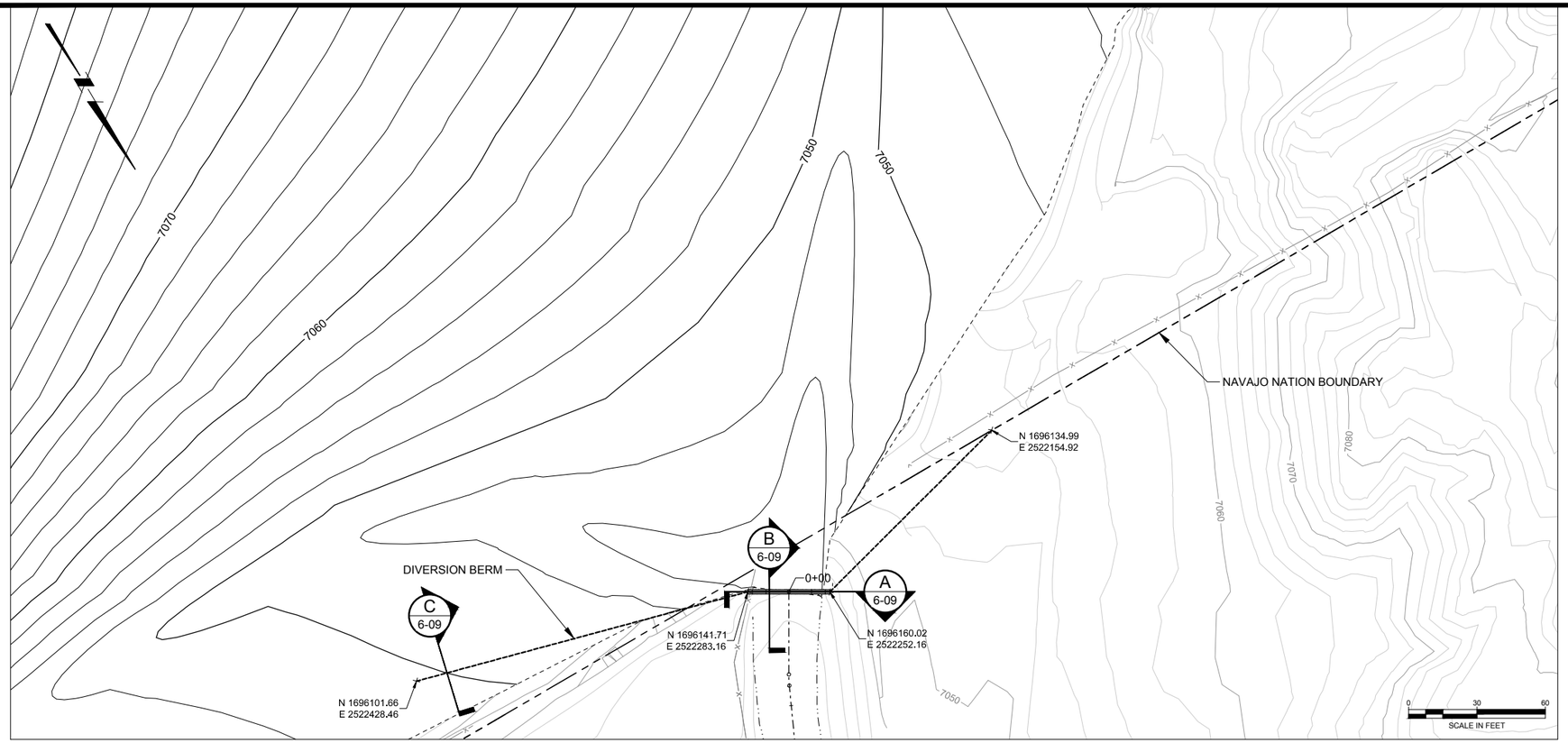
REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	RW	ISSUED FOR 30% DESIGN

DESIGNED J ERICKSON
CHECKED N HAWS
APPROVED J CUMBERS

MWH. now part of Stantec

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO
NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MINE SITE STORMWATER CONTROLS
OUTLET CHANNEL DETAILS

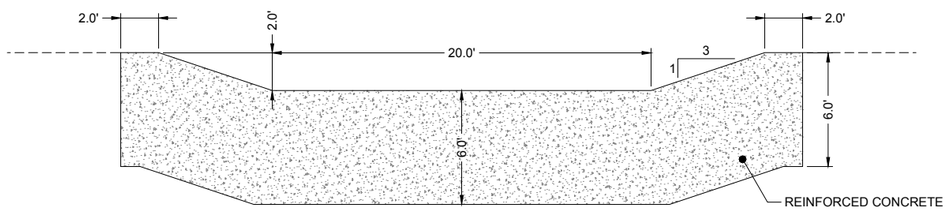
SHEET
6-08
233001048



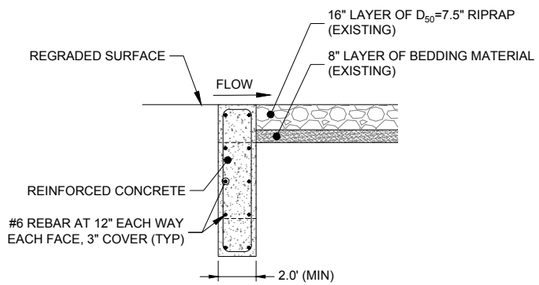
1 6-09 MINE SITE OUTLET CUTOFF WALL
NOT TO SCALE

LEGEND:

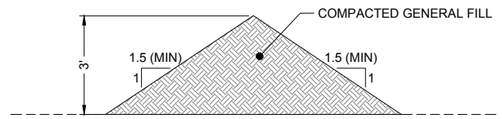
- 7200 — EXISTING GROUND SURFACE CONTOURS & ELEVATION, FEET
- 7200 — DESIGN GROUND SURFACE CONTOURS & ELEVATION, FEET
- DRAINAGE CHANNEL
- APPROXIMATE NAVAJO NATION BOUNDARY
- EXISTING FENCE



A 6-09 CUTOFF WALL SECTION
NOT TO SCALE



B 6-09 CUTOFF WALL SECTION
NOT TO SCALE



C 6-09 DIVERSION BERM SECTION
NOT TO SCALE

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	RW	ISSUED FOR 30% DESIGN

DESIGNED J ERICKSON
CHECKED N HAWS
APPROVED J CUMBERS

MWH. now part of Stantec

UNC GE

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO
NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MINE SITE STORMWATER CONTROLS
CUTOFF WALL PLAN

SHEET
6-09
233001048

LEGEND:

- EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- PROPOSED SUBGRADE SURFACE CONTOUR & ELEVATION, FEET
- UNC PROPERTY BOUNDARY
- ROADS
- NATURAL DRAINAGE
- EXISTING FENCE
- EXISTING SWALES
- FORMER BORROW PIT BOUNDARY

NOTE(S):

1. REPOSITORY REGRADED SUBGRADE IS 6 INCHES BELOW THE EXISTING TDA COVER WITH THE SURFACE SWALES FILLED IN.

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

DESIGNED K REED
CHECKED M WITLER
APPROVED J CUMBERS

MWH. now part of Stantec

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
REPOSITORY SUBGRADE - EXISTING RADON BARRIER

SHEET
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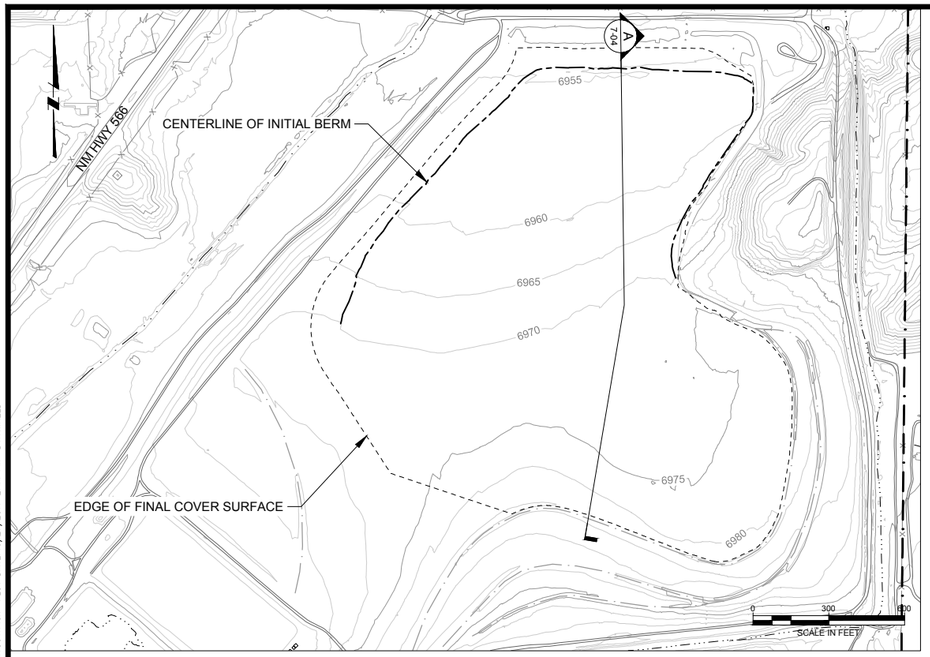
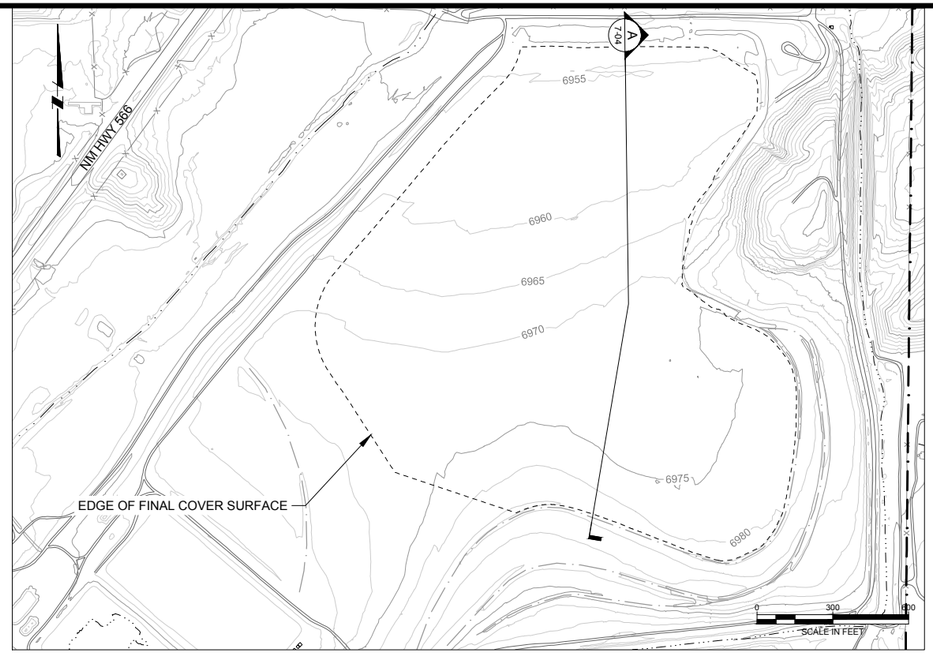


INITIAL STORMWATER CONTROL BERM



REPOSITORY MINE WASTE PLACEMENT PHASE 1

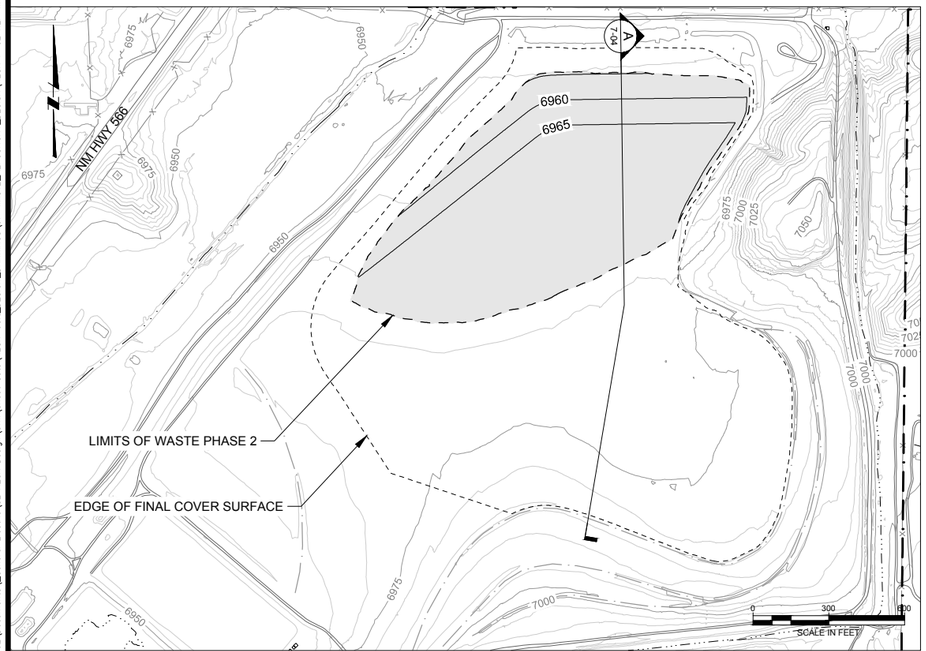
NO PLANNED PLACEMENT OF MINE WASTE (NOTE 3)

LEGEND:

- 7200 — EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- 7200 — PROPOSED WASTE SURFACE CONTOUR & ELEVATION, FEET
- ROADS
- NATURAL DRAINAGE
- EXISTING FENCE
- EXISTING DRAINAGE
- EXISTING SWALES
- STORMWATER BERM
- CURRENT PLACEMENT AREA

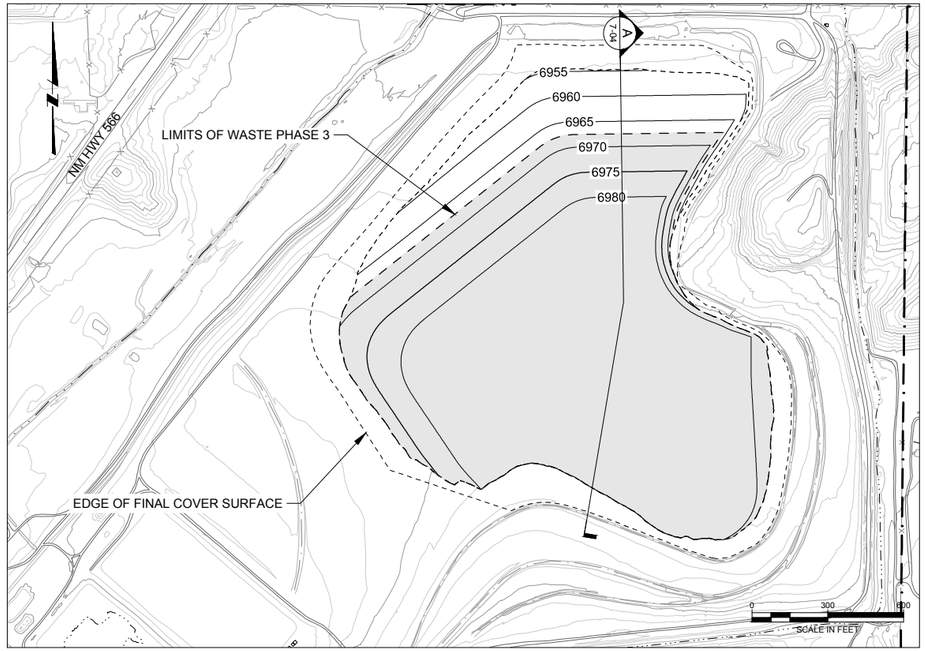
NOTE(S):

1. MINE WASTE PLACEMENT PHASES CORRESPOND TO MINE REMOVAL PHASES SHOWN IN SECTION 3. PLACEMENT SHOWN WITHOUT VOLUME REDUCTION FOR COMPACTION.
2. STORMWATER BERMS CONSTRUCTED OF CLEAN BORROW SOIL MEETING COVER MATERIAL SPECIFICATIONS.
3. PHASE 1 PTW WILL BE DISPOSED OFFSITE



REPOSITORY MINE WASTE PLACEMENT PHASE 2

173,594 CY OF MINE WASTE



REPOSITORY MINE WASTE PLACEMENT PHASE 3

445,559 CY OF MINE WASTE (619,153 CY TOTAL)

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

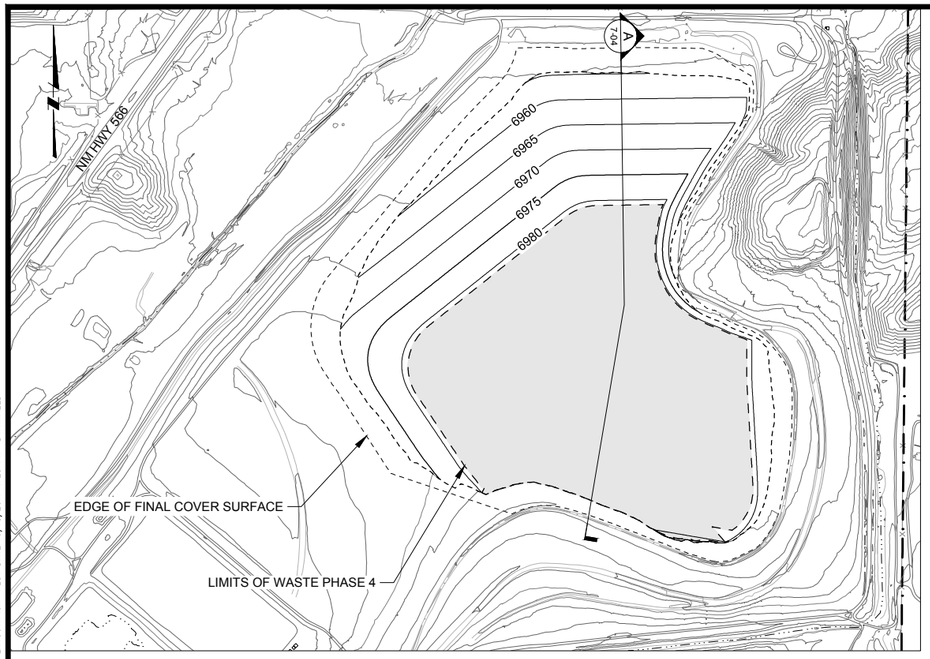
DESIGNED K REED
CHECKED M WITLER
APPROVED J CUMBERS

MWH. now part of Stantec

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO
NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
REPOSITORY MINE WASTE FILL BY REMOVAL PHASE
AND TEMPORARY STORMWATER CONTROL BERMS (1 OF 2)

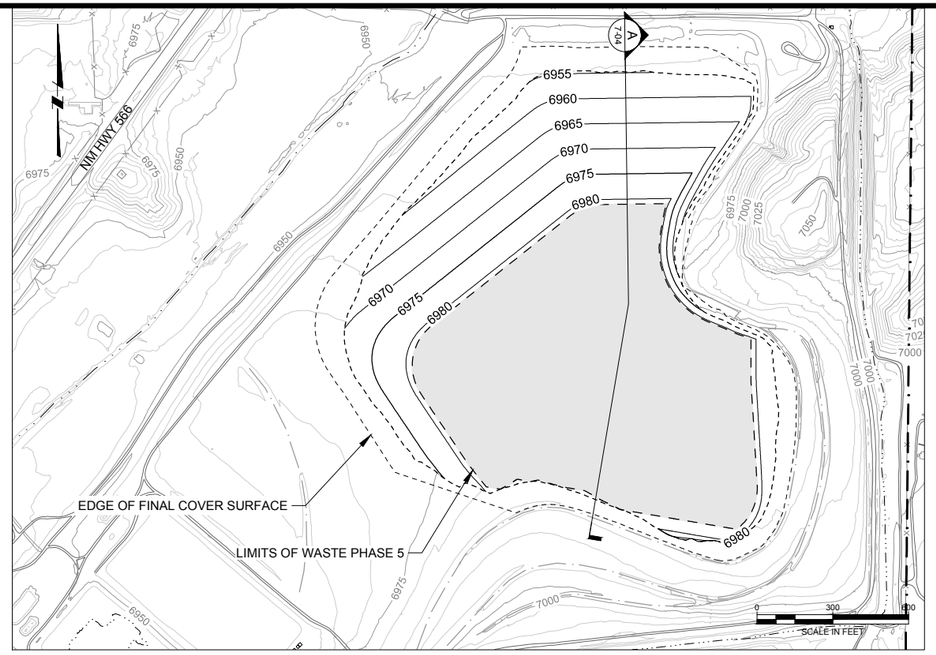
SHEET 7-02

233001048



REPOSITORY MINE WASTE PLACEMENT PHASE 4

43,459 CY OF MINE WASTE (662,612 CY TOTAL)



REPOSITORY MINE WASTE PLACEMENT PHASE 5

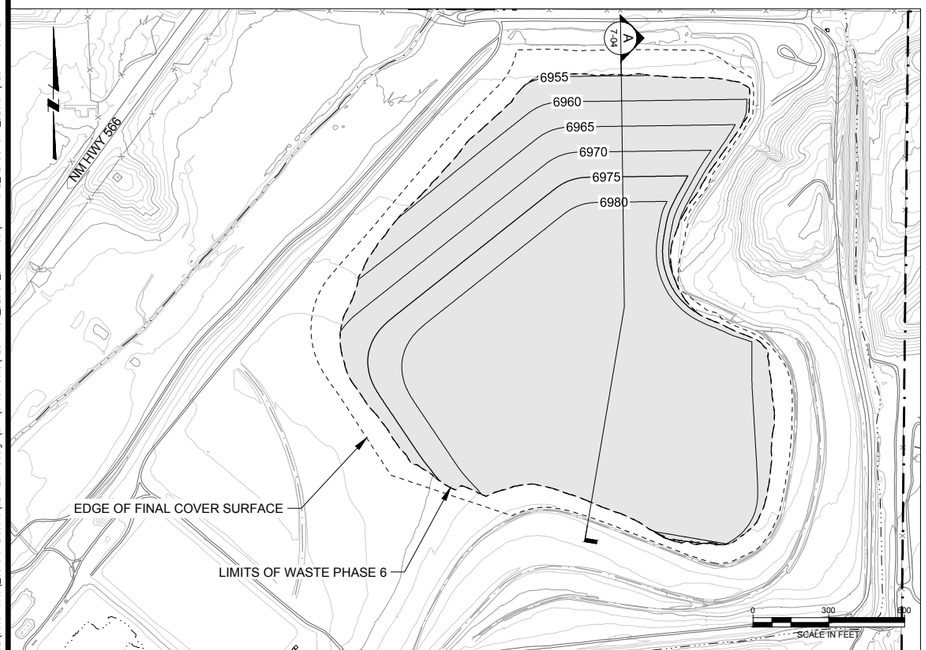
34,272 CY OF MINE WASTE (696,884 CY TOTAL)

LEGEND:

- EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- PROPOSED WASTE SURFACE CONTOUR & ELEVATION, FEET
- ROADS
- NATURAL DRAINAGE
- EXISTING FENCE
- EXISTING DRAINAGE
- EXISTING SWALES
- CURRENT PLACEMENT AREA

NOTE(S):

1. MINE WASTE PLACEMENT PHASES CORRESPOND TO REMOVAL PHASES SHOWN IN SECTION 3.



REPOSITORY MINE WASTE PLACEMENT PHASE 6

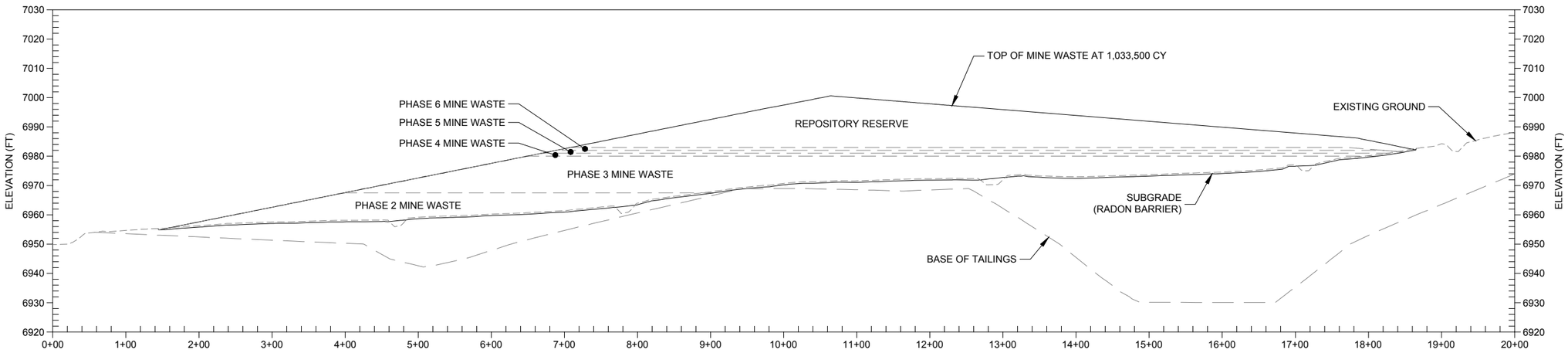
28,356 CY OF MINE WASTE (725,240 CY TOTAL)

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

DESIGNED K REED
CHECKED M WITLER
APPROVED J CUMBERS

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO
NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
REPOSITORY MINE WASTE FILL BY REMOVAL PHASE
AND TEMPORARY STORMWATER CONTROL BERMS (2 OF 2)

SHEET
7-03
233001048



A 7-04 REPOSITORY PROFILE
FILL PROGRESSION

HORZ 0 80 160
VERT 0 20 40
SCALE IN FEET

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

DESIGNED K REED
CHECKED M WITLER
APPROVED J CUMBERS

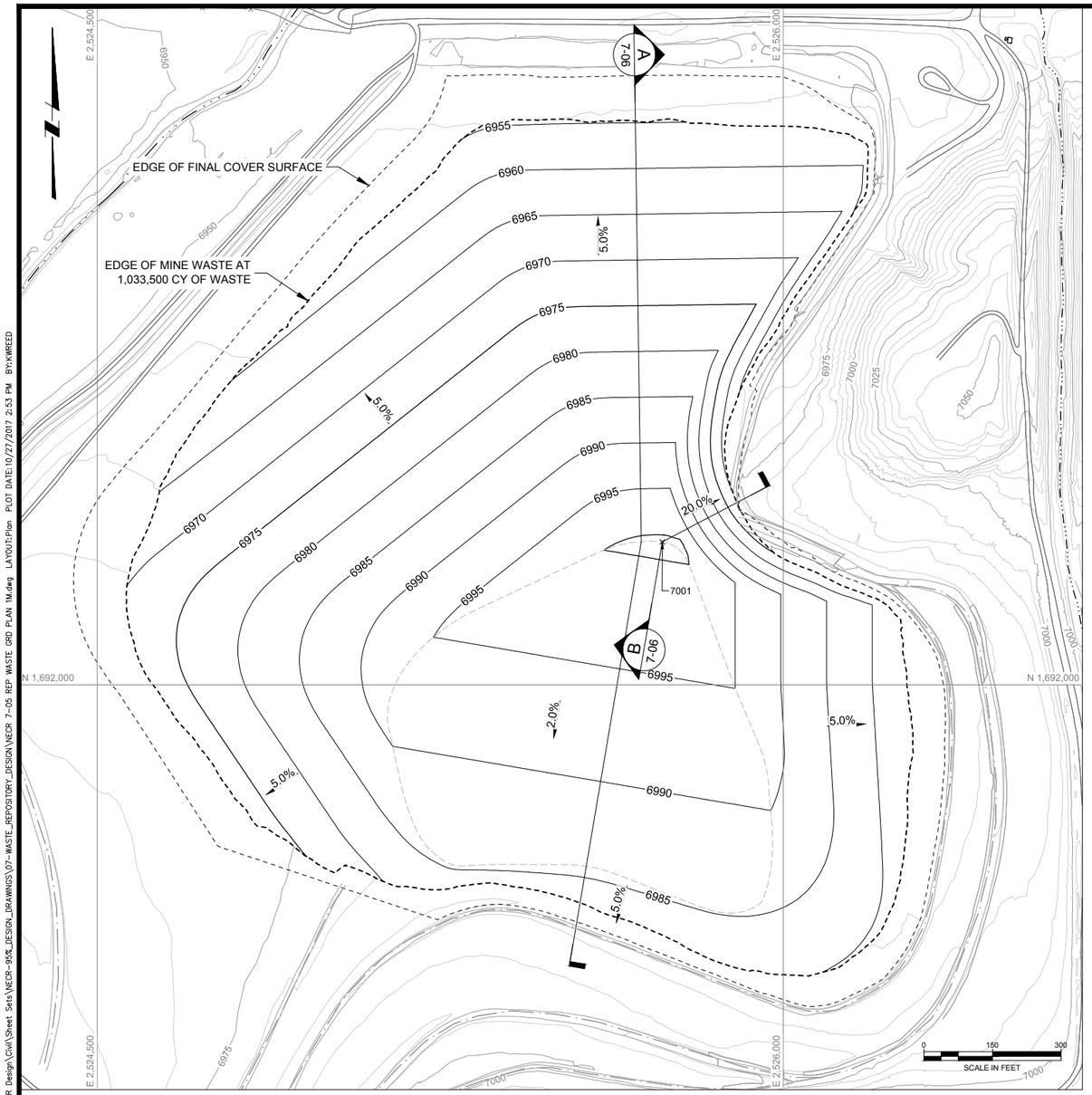
MWH. now part of Stantec

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

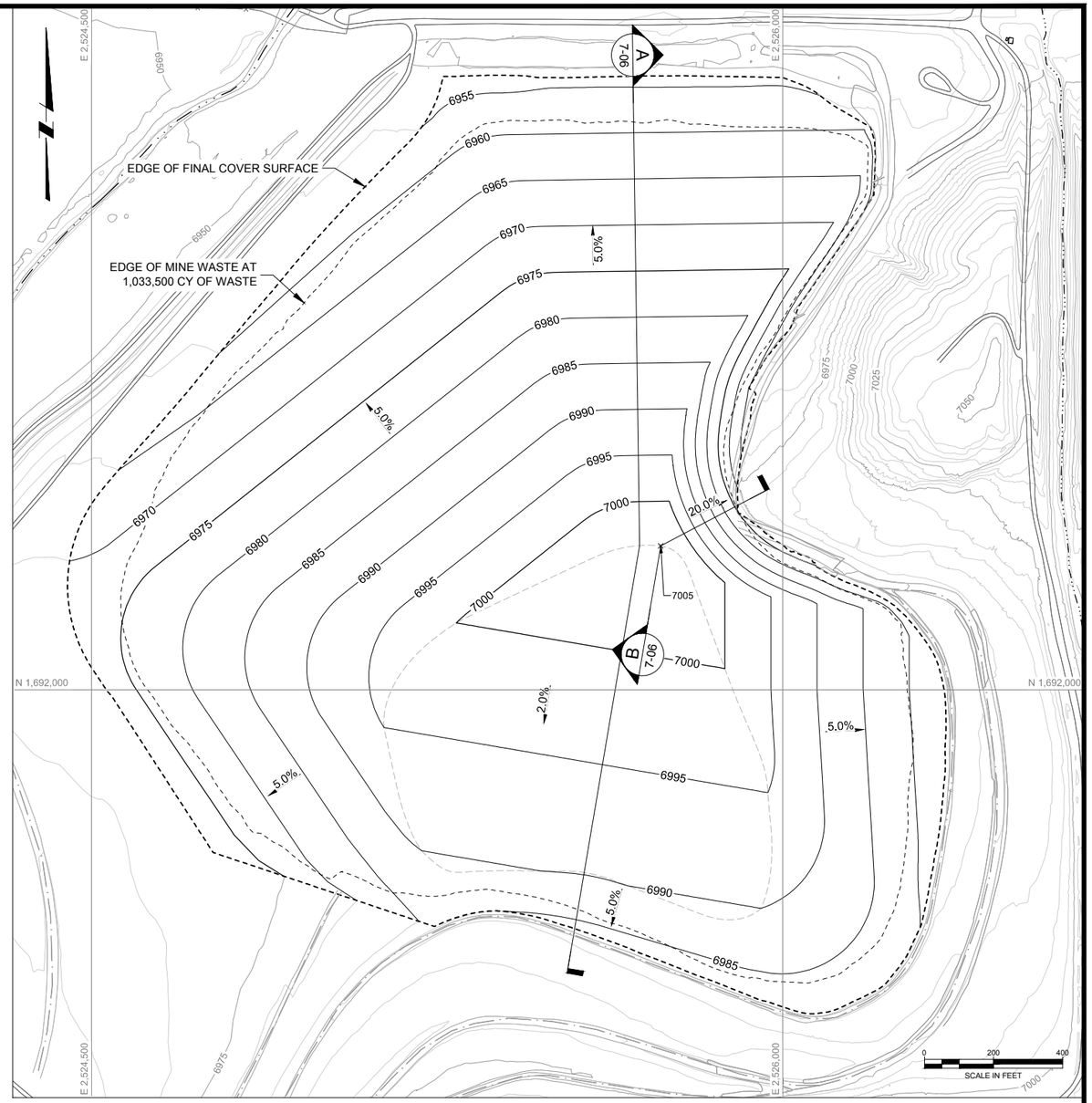
NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
REPOSITORY MINE WASTE FILL PROFILE BY REMOVAL PHASE

SHEET
7-04
233001048

p:\\cmerpwm103.mwhglobal.com:AM_PROJECTS02\Documents_General Electric\GE NECR Design\Civil\Sheet Sets\NECR-95%_DESIGN_DRAWINGS\07-WASTE_REPOSITORY_DESIGN\NECR 7-04 REP LIFT PROFILES.dwg LAYOUT:Profile PLOT DATE:10/18/2017 1:26 PM BY:KMREED



REPOSITORY TOP OF MINE WASTE SURFACE
AT 1,033,500 CY OF MINE WASTE



REPOSITORY TOP OF COVER SURFACE
AT 1,033,500 CY OF MINE WASTE

LEGEND:

- 7200 — EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- 7200 — PROPOSED SURFACE CONTOUR & ELEVATION, FEET
- ROADS
- NATURAL DRAINAGE
- EXISTING SWALES

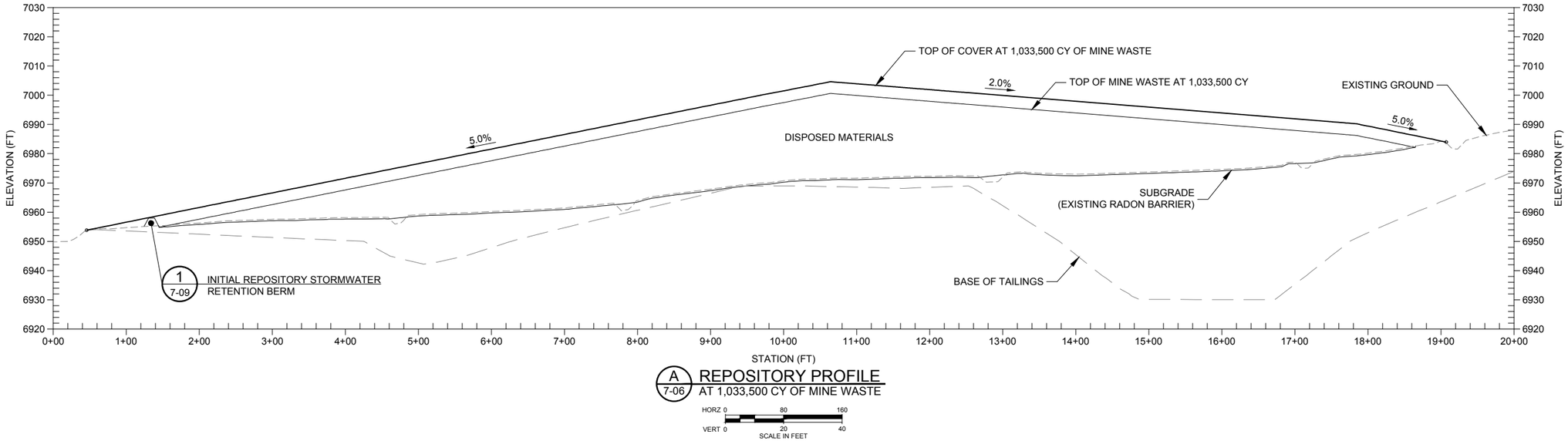
REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

DESIGNED K REED
CHECKED M WITLER
APPROVED J CUMBERS

MWH. now part of Stantec

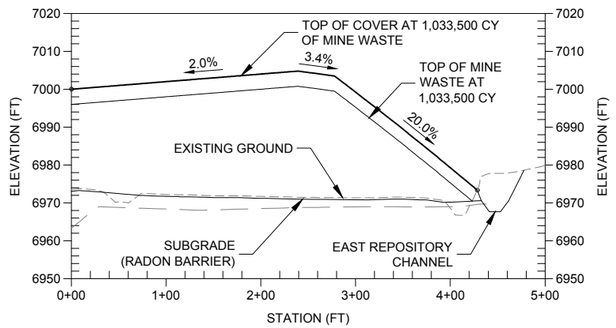
UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO
NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
REPOSITORY TOP OF MINE WASTE
AND COVER GRADING PLAN

SHEET
7-05
233001048



A 7-06 REPOSITORY PROFILE
AT 1,033,500 CY OF MINE WASTE

HORZ 0 80 160
VERT 0 20 40
SCALE IN FEET



B 7-06 REPOSITORY PROFILE
AT 1,033,500 CY OF MINE WASTE

HORZ 0 80 160
VERT 0 20 40
SCALE IN FEET

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

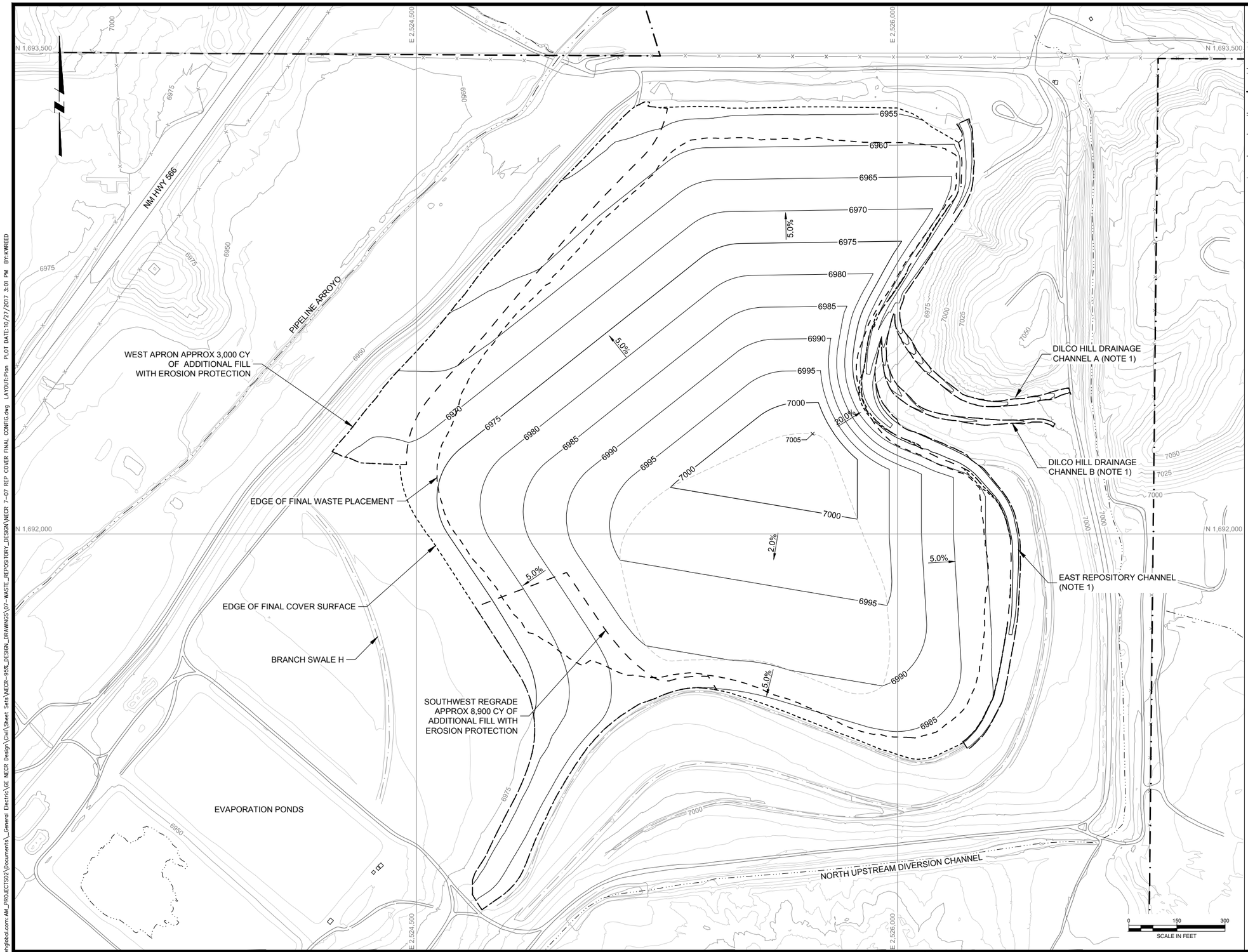
DESIGNED K REED
CHECKED M WITLER
APPROVED J CUMBERS

MWH. now part of Stantec

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
REPOSITORY PROFILES

SHEET
7-06
233001048



LEGEND:

- EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- PROPOSED SURFACE CONTOUR & ELEVATION, FEET
- UNC PROPERTY BOUNDARY
- ROADS
- NATURAL DRAINAGE
- EXISTING FENCE
- EXISTING SWALES

NOTE(S):

1. PERMANENT STORMWATER CONTROL STRUCTURES DETAILED IN SECTION 9 DRAWINGS.

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

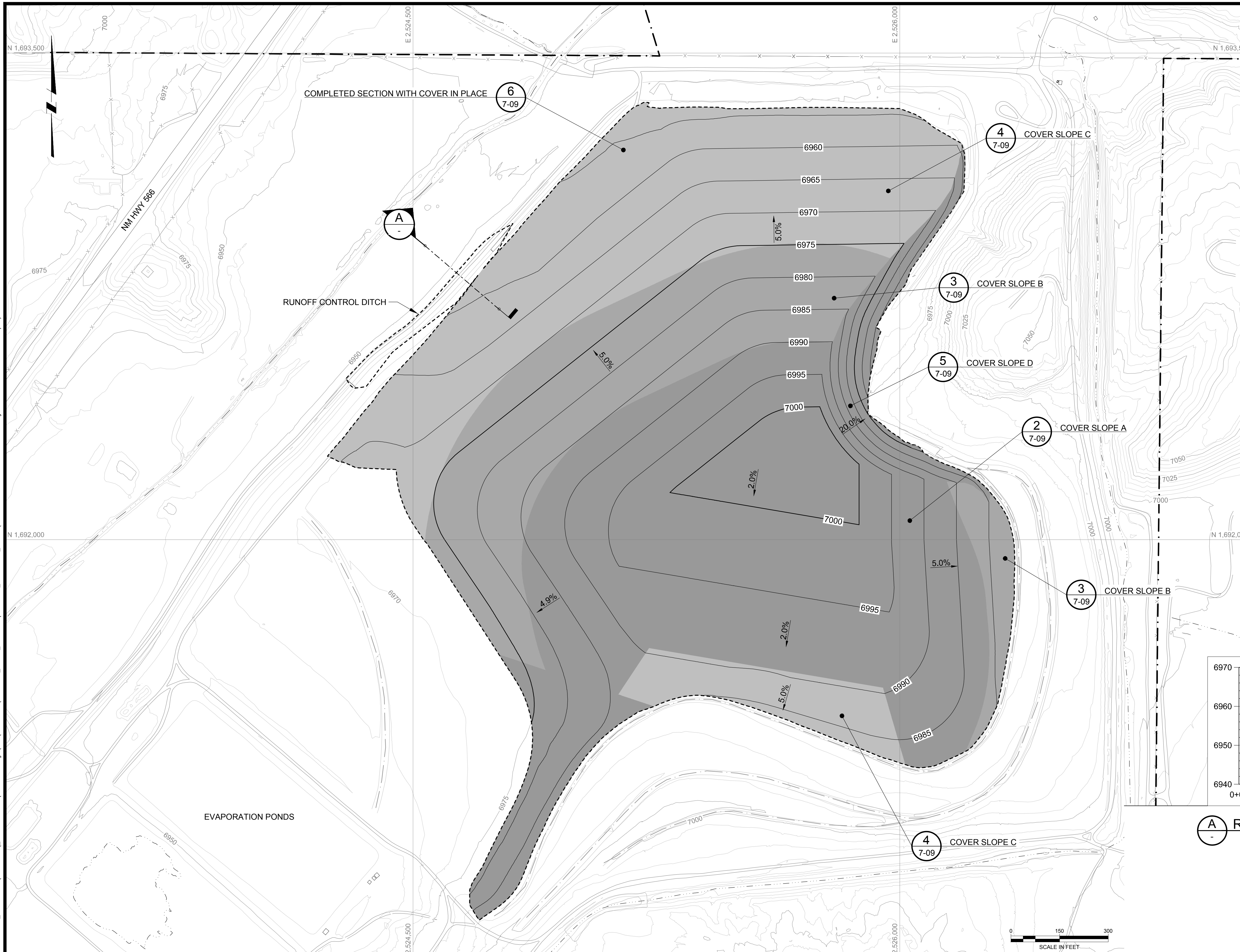
DESIGNED K REED
CHECKED M WITLER
APPROVED J CUMBERS

MWH. now part of Stantec

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
REPOSITORY FINAL COVER GRADING PLAN

SHEET
7-07
233001048

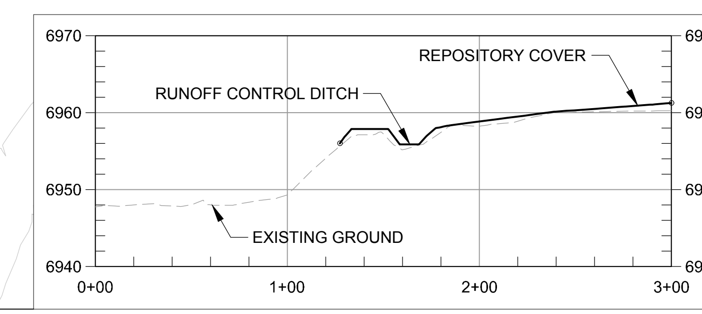


LEGEND:

- 7200 — EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- 7200 — PROPOSED POST STRIPPING SURFACE CONTOUR & ELEVATION, FEET
- UNC PROPERTY BOUNDARY
- ROADS
- NATURAL DRAINAGE
- EXISTING FENCE
- EXISTING SWALES
- COVER SLOPE A (D_{50} = 1.5 INCHES)
- COVER SLOPE B (D_{50} = 2 INCHES)
- COVER SLOPE C (D_{50} = 3 INCHES)
- COVER SLOPE D (D_{50} = 1.5 INCHES)

NOTE(S):

1. ET COVER WITH EROSION PROTECTION DESIGNS BY DWYER ENGINEERING, LLC.
2. COVER SLOPE D RIPRAP DESIGN BY STANTEC.



A / - REPOSITORY COVER TO CHANNEL TRANSITION

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

DESIGNED K REED
CHECKED M WITLER
APPROVED J CUMBERS

MWH. now part of Stantec

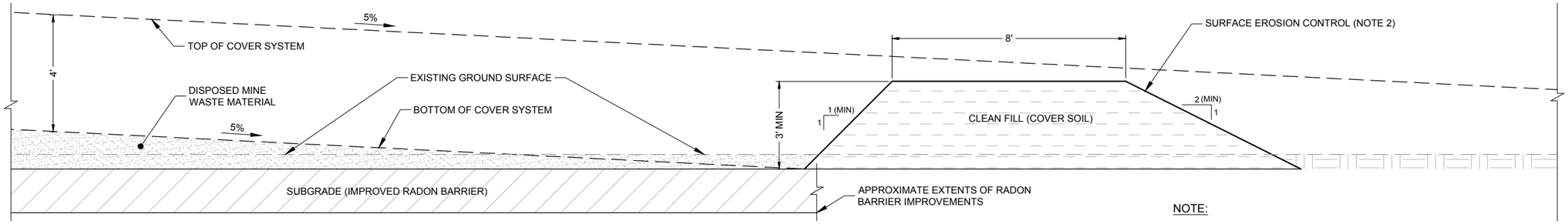
UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
COVER SURFACE EROSION PROTECTION

SHEET 7-08

233001048

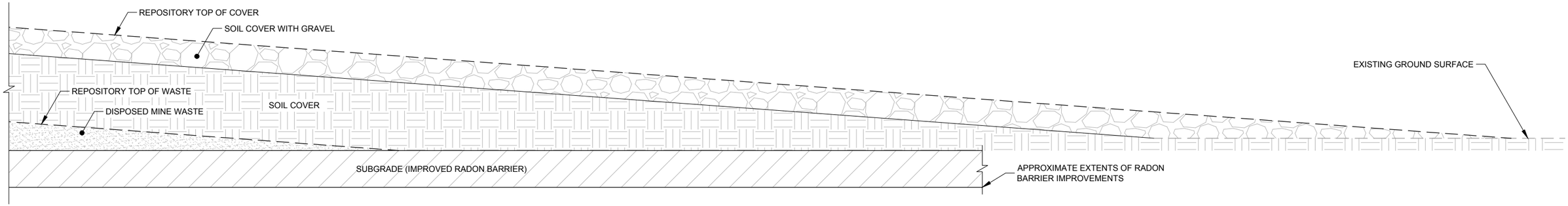
pw:\\amervpwint03.mwhglobal.com:AM_PROJECTS02\Documents_General Electric\GE NECR Design\Civil\Sheet Sets\NECR-95%_DESIGN_DRAWINGS\07-WASTE_REPOSITORY_DESIGN\NECR 7-08 REP DRAINAGE LENGTHS.dwg LAYOUT:Plan PLOT DATE:10/30/2017 11:49 AM BY:KWREED



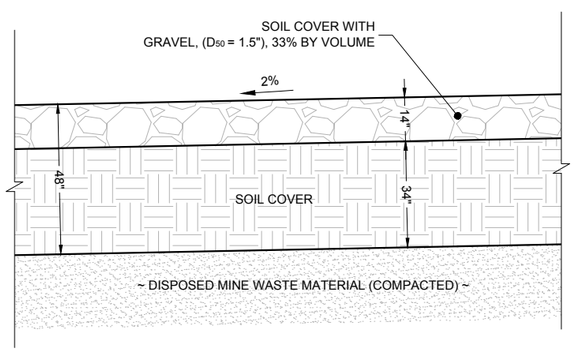
1 7-09 **INITIAL REPOSITORY PERIMETER STORMWATER RETENTION BERM**
(NOT TO SCALE)

NOTE:

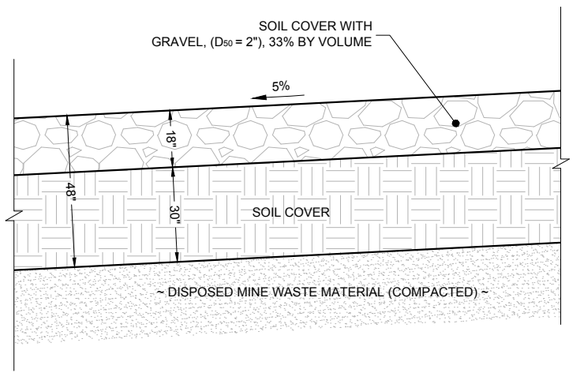
1. CLEAN FILL FOR BERMS TO BE GRADED INTO SOIL COVER LAYER.
2. SEE CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN



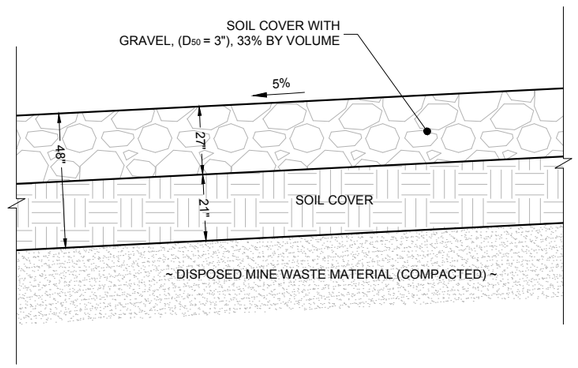
6 7-09 **COMPLETED SECTION WITH COVER IN PLACE**
(NOT TO SCALE)



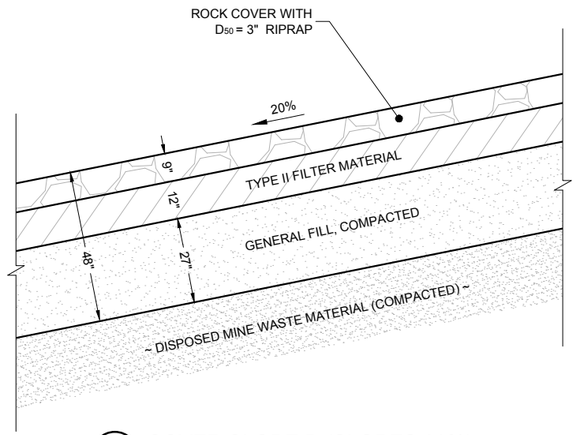
2 7-09 **COVER SLOPE A (TOP SLOPES)**
(NOT TO SCALE)



3 7-09 **COVER SLOPE B (SIDE SLOPES)**
(NOT TO SCALE)



4 7-09 **COVER SLOPE C (LOWER SIDE SLOPES)**
(NOT TO SCALE)



5 7-09 **COVER SLOPE D (SLOPES 20%)**
(NOT TO SCALE)

NOTE:

1. ET COVER AND EROSION PROTECTION DESIGNS BY DWYER ENGINEERING, LLC.

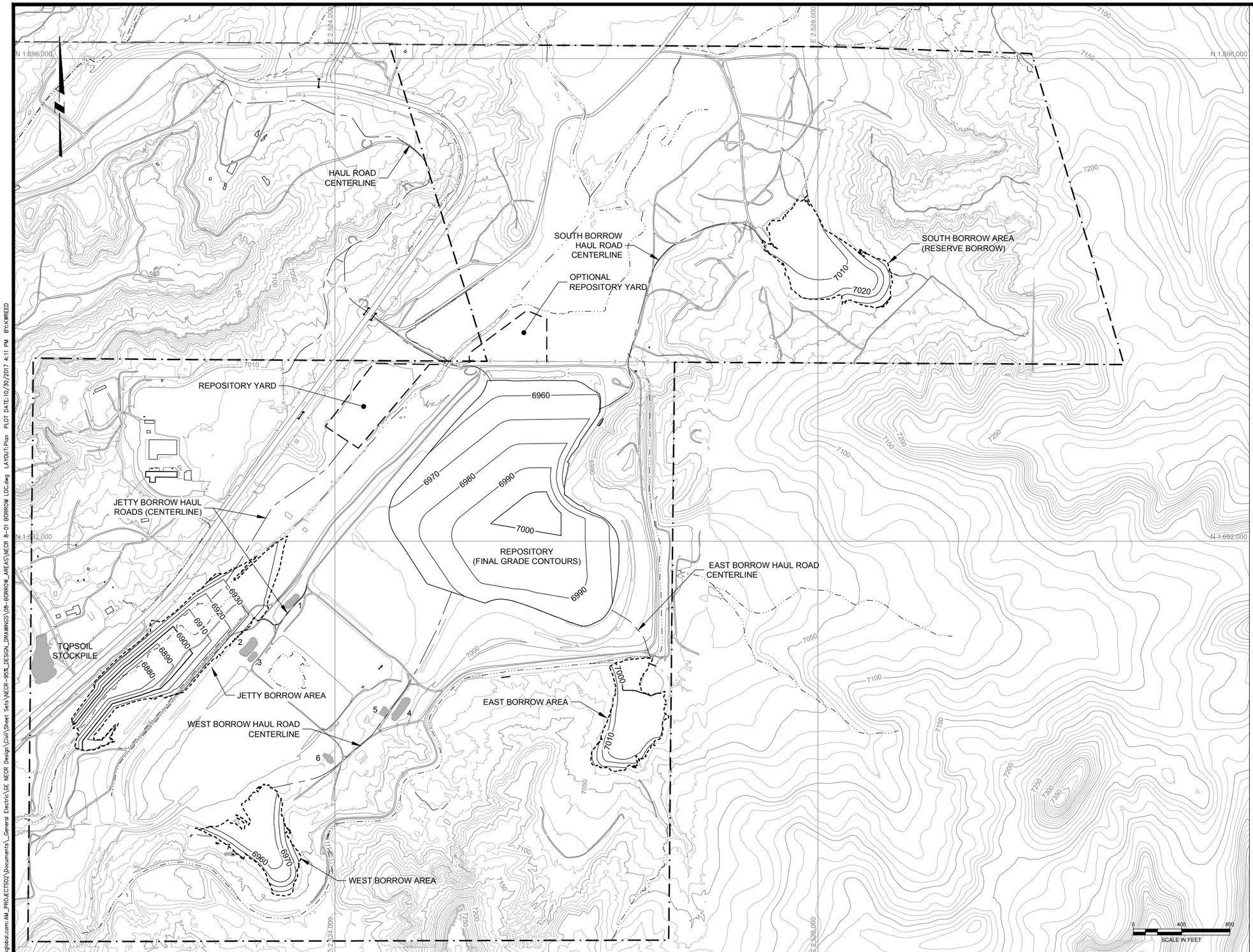
REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

DESIGNED K REED
CHECKED M WITLER
APPROVED J CUMBERS

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
REPOSITORY COVER DETAILS

SHEET
7-09
233001048



LEGEND:

- EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- BORROW EXCAVATION CONTOUR & ELEVATION, FEET
- CHURCH ROCK MILL SITE BOUNDARY
- BORROW AREA BOUNDARY
- HAUL ROAD CENTERLINE
- NATURAL DRAINAGE
- EXISTING ROAD
- EXISTING FENCE
- 4 — MATERIAL STOCKPILE AND DESIGNATION

NOTE(S):

1. STOCKPILE 1 IS CRUSHER FINES, STOCKPILE 3 IS ROAD BASE, AND THE REMAINING STOCKPILES (2, 4-6) ARE CRUSHED BASALT RANGING IN SIZE FROM 1 TO 15 INCHES.
2. TOPSOIL STOCKPILE IS APPROXIMATELY 20,000 CY.

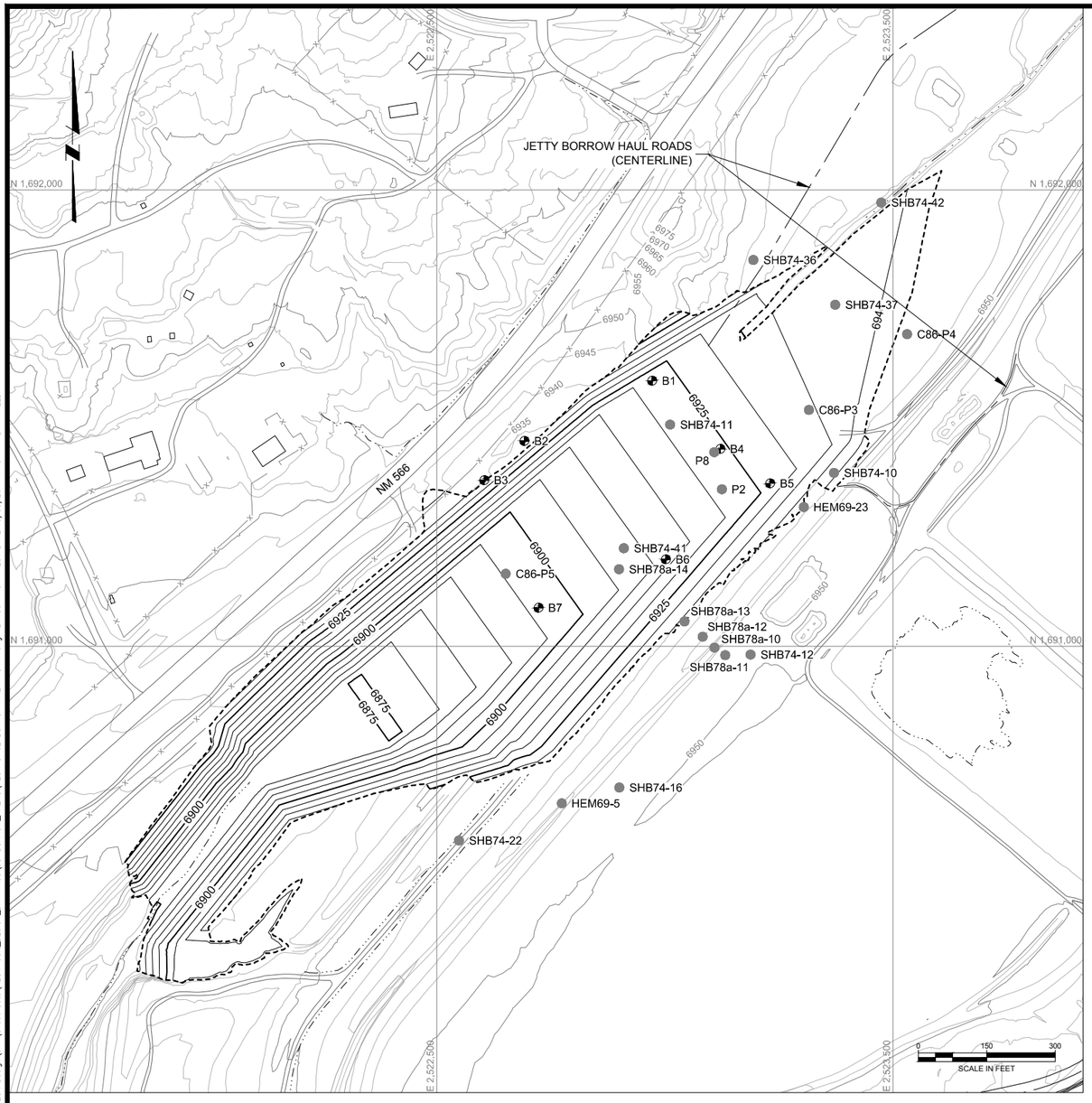
REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

DESIGNED K REED
CHECKED M WITLER
APPROVED J CUMBERS

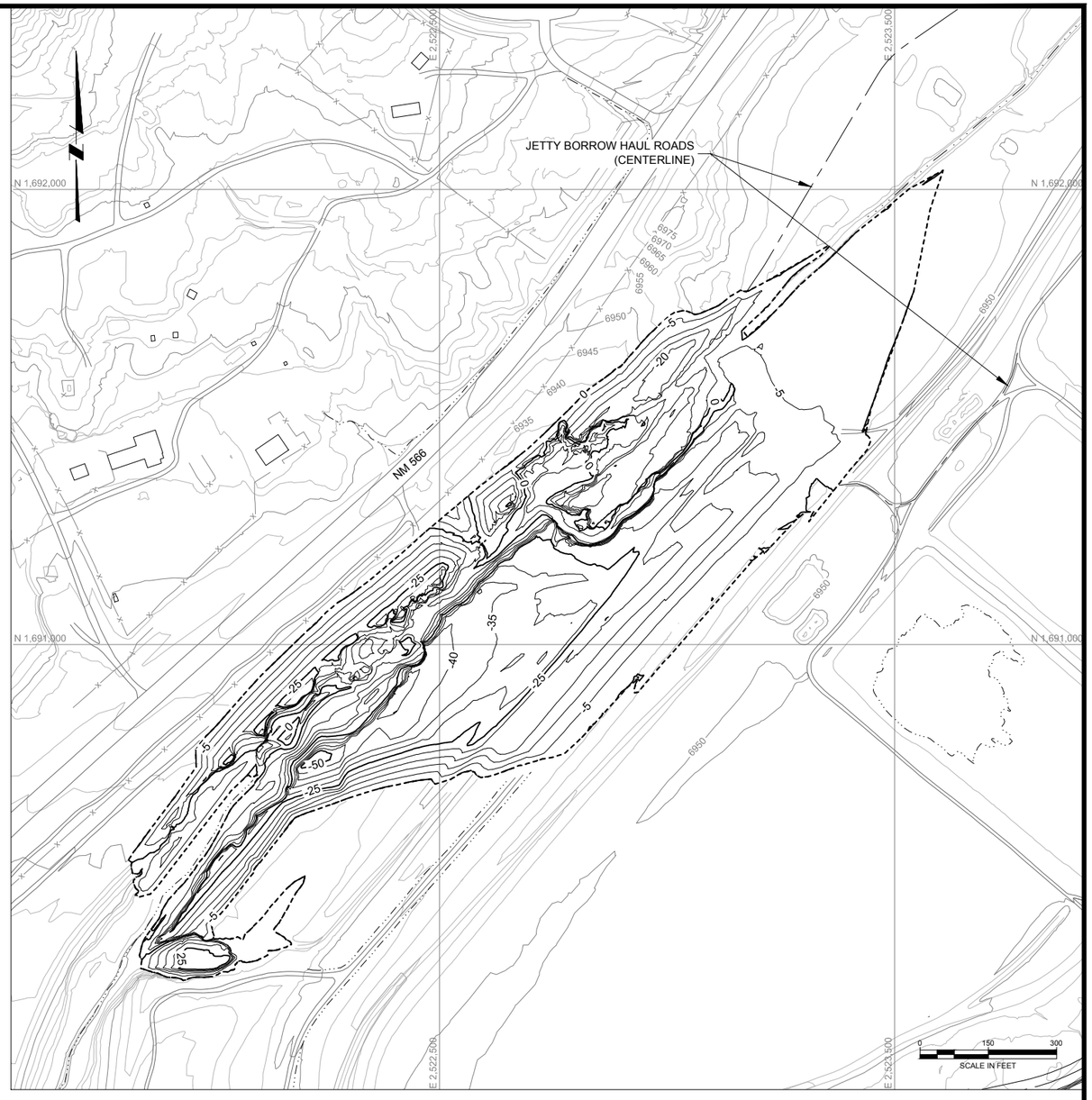
UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
BORROW AREAS LOCATION MAP

SHEET
8-01
233001048



JETTY BORROW AREA - FINAL GRADING



JETTY BORROW AREA - CUT DEPTHS

LEGEND:

- 7200 — EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- 7200 — BORROW EXCAVATION CONTOUR & ELEVATION, FEET
- -10 — BORROW EXCAVATION DEPTHS & ELEVATION, FEET
- CHURCH ROCK MILL SITE BOUNDARY
- BORROW AREA BOUNDARY
- BORROW AREA HAUL ROAD CENTERLINE
- NATURAL DRAINAGE
- EXISTING ROAD
- EXISTING FENCE
- SOIL BORING (MWH, 2013)
- SHB74-XX (SERGENT, HAUSKINS, AND BECKWITH, 1974)
  PX (CANONIE, 1986)
  HEM69 (HEMPHILL, 1969)

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN

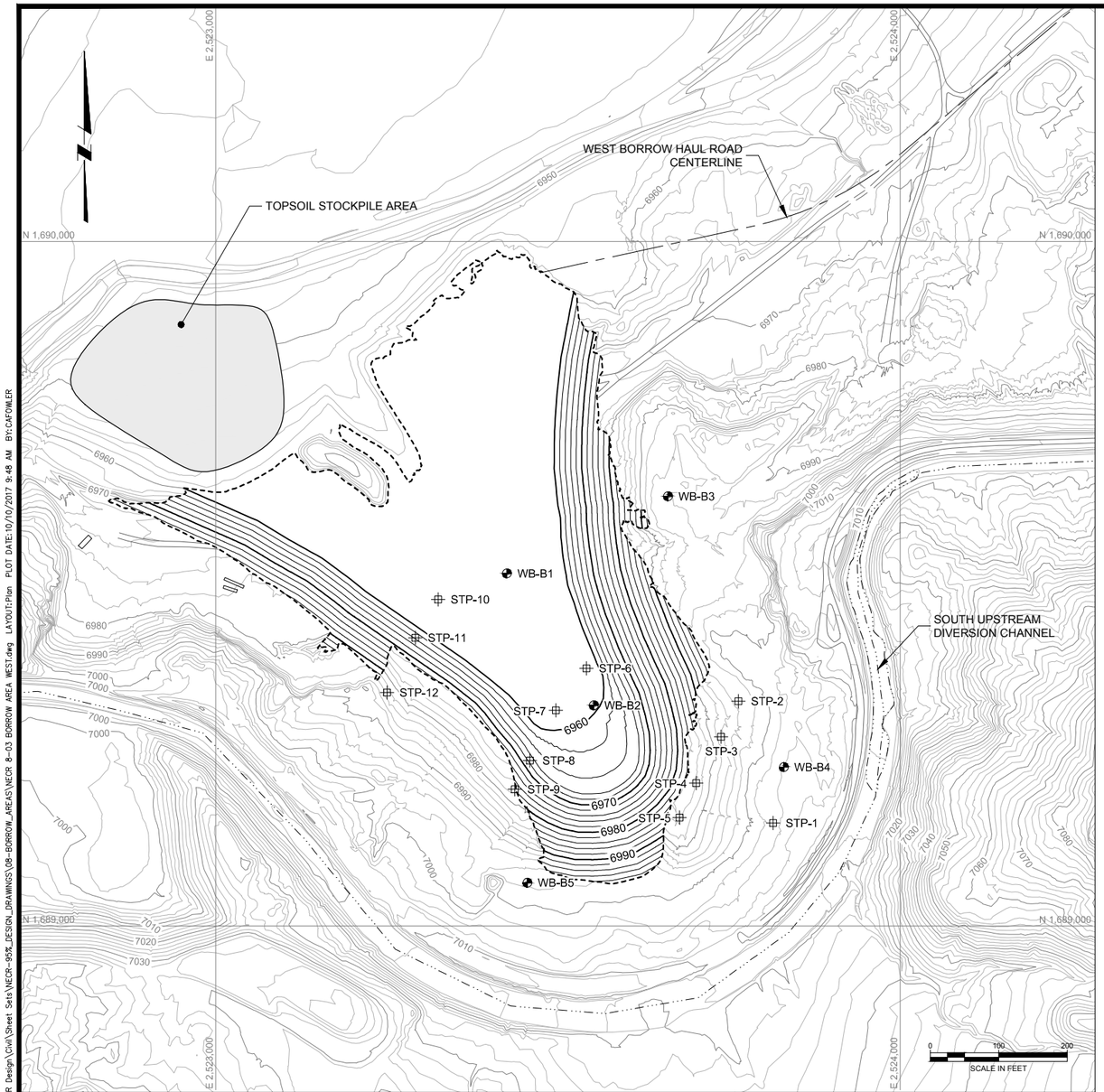
DESIGNED J ERICKSON
CHECKED M WITLER
APPROVED J CUMBERS

MWH now part of Stantec

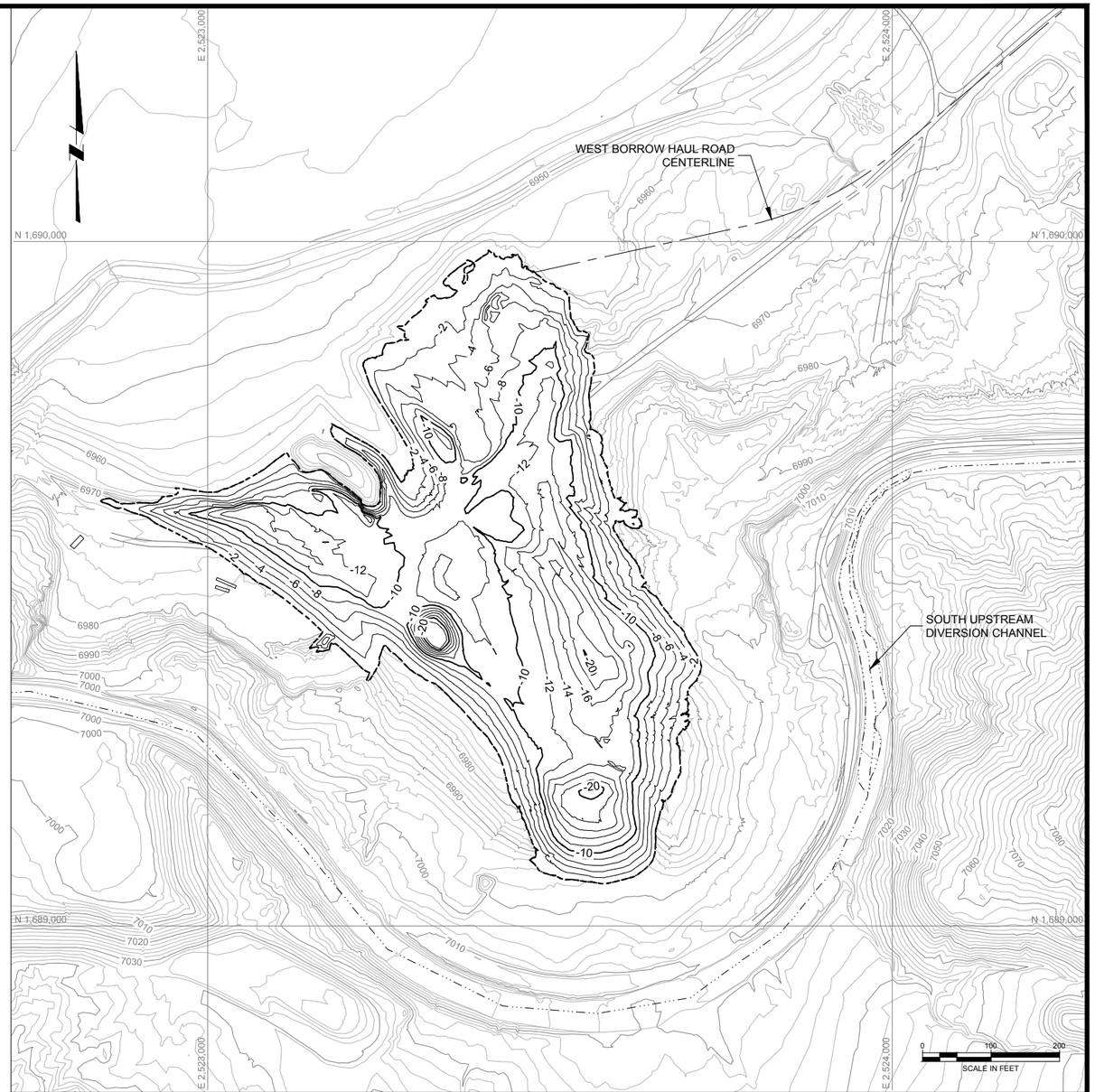
UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
JETTY BORROW AREA

SHEET
8-02
233001048



WEST BORROW AREA - FINAL GRADING



WEST BORROW AREA - CUT DEPTHS

LEGEND:

7200	EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
7200	BORROW EXCAVATION CONTOUR & ELEVATION, FEET
-10	BORROW EXCAVATION DEPTHS & ELEVATION, FEET
	BORROW AREA BOUNDARY
	BORROW AREA HAUL ROAD CENTERLINE
	NATURAL DRAINAGE
	EXISTING ROAD
	SOIL BORING (MWH, 2013)
	TEST PIT (MWH, 2012)

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

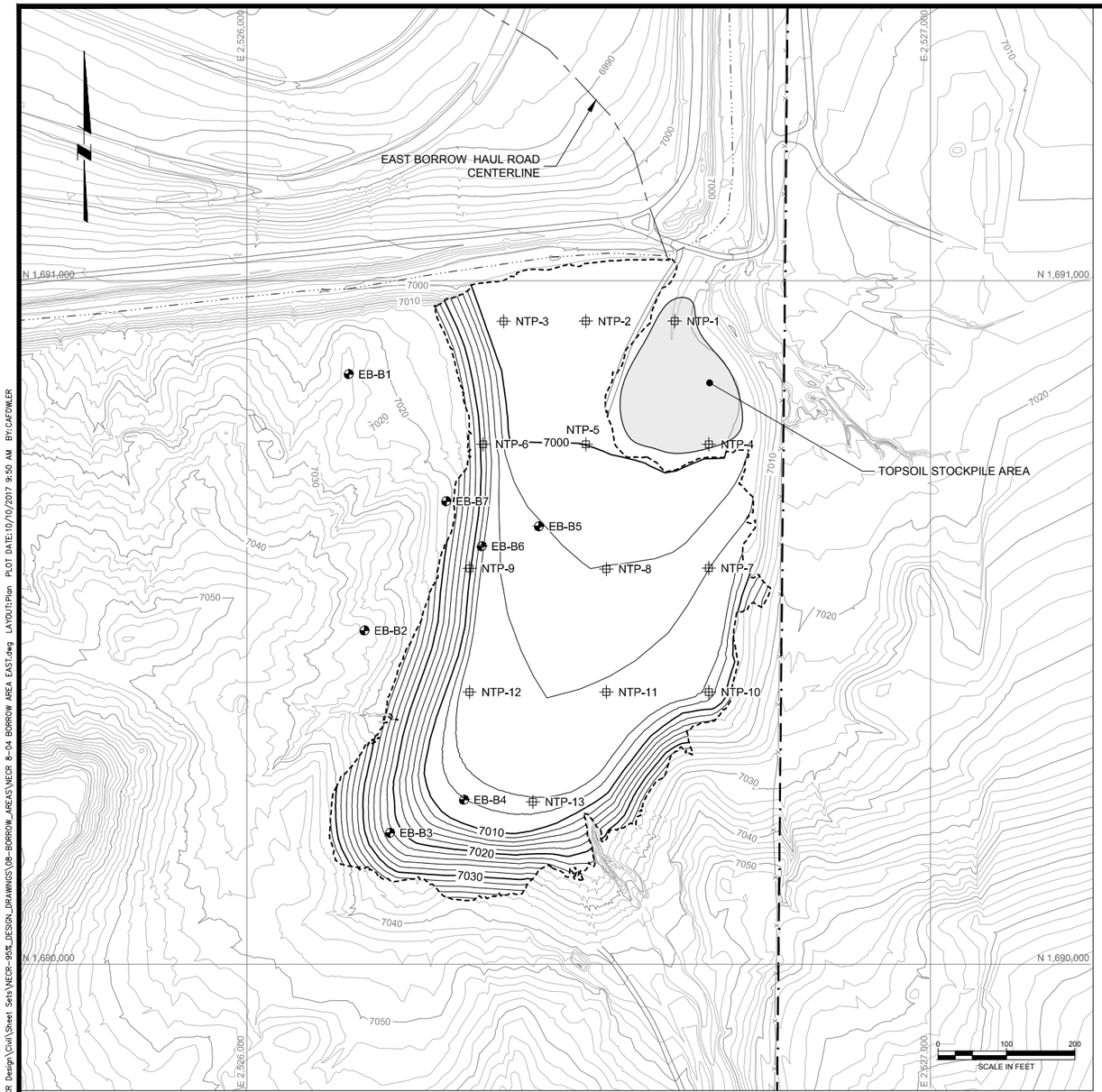
DESIGNED K.REED
CHECKED M.WITLER
APPROVED J.CUMBERS

MWH. now part of Stantec

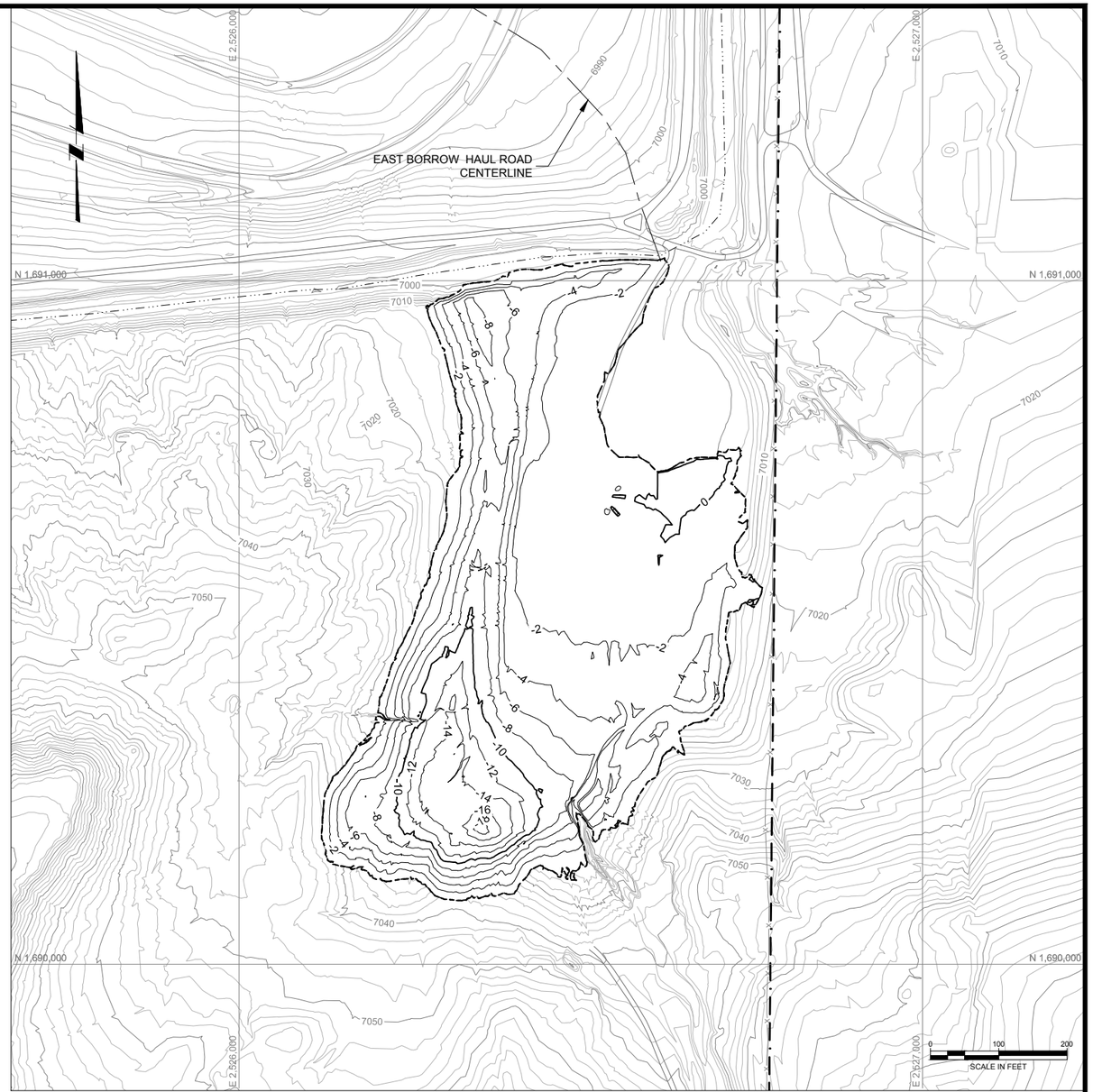
UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
WEST BORROW AREA

SHEET
8-03
233001048



EAST BORROW AREA - FINAL GRADING



EAST BORROW AREA - CUT DEPTHS

LEGEND:

- 7200 — EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- 7200 — BORROW EXCAVATION CONTOUR & ELEVATION, FEET
- -10 — BORROW EXCAVATION DEPTHS & ELEVATION, FEET
- CHURCH ROCK MILL SITE BOUNDARY
- BORROW AREA BOUNDARY
- BORROW AREA HAUL ROAD CENTERLINE
- NATURAL DRAINAGE
- EXISTING ROAD
- EXISTING FENCE
- SOIL BORING (MWH, 2013)
- TEST PIT (MWH, 2012)

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

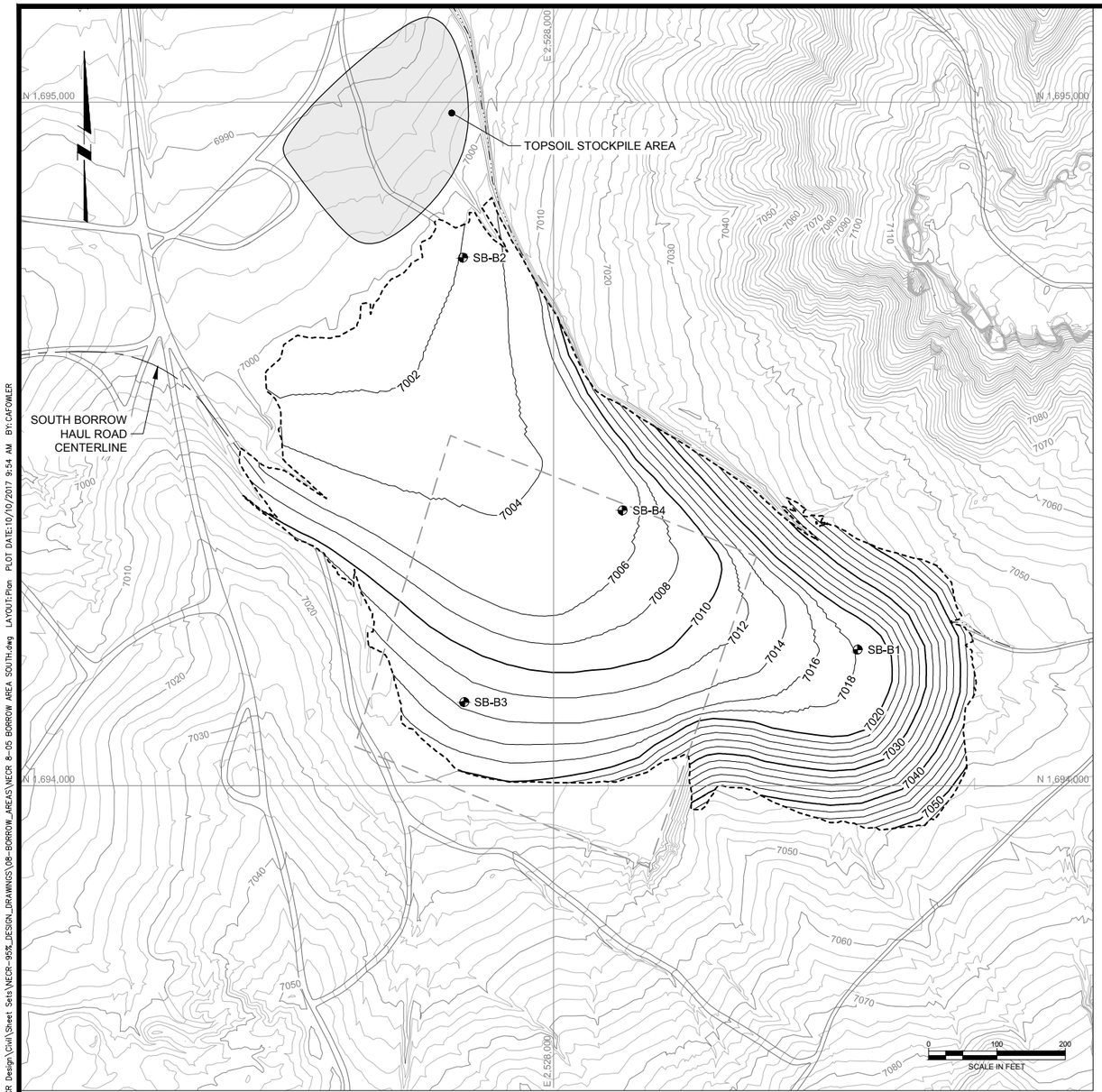
DESIGNED K REED
CHECKED M WITLER
APPROVED J CUMBERS

MWH. now part of Stantec

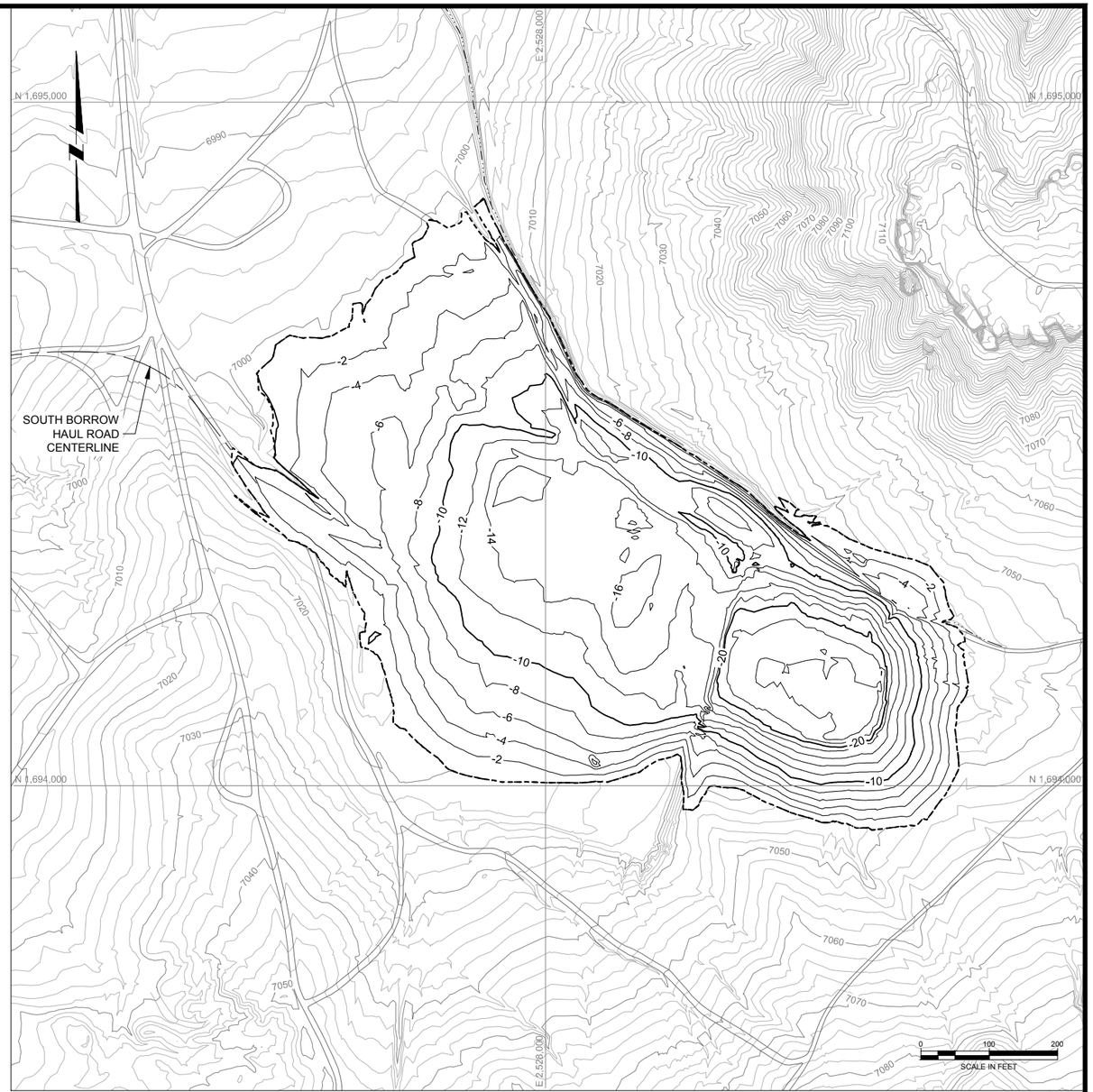
UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
EAST BORROW AREA

SHEET
8-04
233001048



SOUTH BORROW AREA - FINAL GRADING



SOUTH BORROW AREA - CUT DEPTHS

LEGEND:

- 7200 — EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- 7200 — BORROW EXCAVATION CONTOUR & ELEVATION, FEET
- -10 — BORROW EXCAVATION DEPTHS & ELEVATION, FEET
- BORROW AREA BOUNDARY
- BORROW AREA HAUL ROAD CENTERLINE
- NATURAL DRAINAGE
- EXISTING ROAD
- POTENTIAL BURIED DEBRIS AREA
- SOIL BORING (MWH, 2013)

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	KR	ISSUED FOR 30% DESIGN

DESIGNED K REED
CHECKED M WITLER
APPROVED J CUMBERS

MWH. now part of Stantec

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
SOUTH BORROW AREA

SHEET 8-05

233001048

N 1,694,000
N 1,692,000
E 2,524,000
E 2,526,000

PIPELINE CANYON ROAD (UNPAVED)
ALLUVIAL FLOODPLAIN
NORTH CELL DRAINAGE CHANNEL
NORTH CELL
FORMER MILL SITE YARD
RUNOFF CONTROL DITCH
BRANCH SWALE G
NORTH DIVERSION CHANNEL
NM HIGHWAY 566
PIPELINE ARROYO
DILCO HILL
UNC OFFICES
BRANCH SWALE F
TAILINGS DISPOSAL AREA (TDA)
BRANCH SWALE B
BRANCH SWALE E
BRANCH SWALE H
BRANCH SWALE D
CENTRAL CELL
NICKPOINT
ROCK "JETTY"
BRANCH SWALE C
BRANCH SWALE B
BRANCH SWALE A
EVAPORATION PONDS
SOUTH CELL

7050 7000 6950 6900

LEGEND:

- 7200 — EXISTING GROUND SURFACE ELEVATIONS & CONTOUR, FEET
- DRAINAGE CHANNEL
- BRANCH SWALE
- DIVERSION CHANNEL
- ROADS
- NATURAL DRAINAGE
- EXISTING FENCE
- MATERIAL STOCKPILES

0 200 400
SCALE IN FEET

p:\\amerywin103.mwhglobal.com:AM_PROJECTS92\Documents_General Electric\GE NECR Design\Civil\Sheet Sets\NECR-30%_DESIGN_DRAWINGS\01-GENERAL\NECR 9-01 MILL SITE EX COND.dwg LAYOUT:Plan PLOT DATE:10/23/2017 3:11 PM BY:KWREED

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	CF	ISSUED FOR 30% DESIGN

DESIGNED J ERICKSON
CHECKED N HAWS
APPROVED J CUMBERS

MWH. now part of Stantec

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO
NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MILL SITE REPOSITORY AREA STORMWATER CONTROLS
EXISTING CONDITION

SHEET
9-01
233001048

LEGEND:

- 7200 — EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- DRAINAGE CHANNEL
- BRANCH SWALE
- DIVERSION CHANNEL
- ROADS
- NATURAL DRAINAGE
- EXISTING FENCE
- 7200 — PROPOSED SURFACE CONTOUR & ELEVATION, FEET
- LIMITS OF EARTHWORK
- EDGE OF MINE WASTE
- MATERIAL STOCKPILES
- GATE

N 1,694,000
E 2,524,000
E 2,526,000
N 1,692,000
E 2,526,000

UNC OFFICES
NM HIGHWAY 566
PIPELINE ARROYO
ALLUVIAL FLOODPLAIN
NORTH CELL DRAINAGE CHANNEL (EXISTING)
RUNOFF CONTROL DITCH (EXISTING)
EXTEND NORTH DRAINAGE RUNOFF CONTROL DITCH
WEST APRON
EAST REPOSITORY CHANNEL
NORTH DIVERSION CHANNEL
DILCO HILL
DILCO HILL DRAINAGE CHANNEL A (SEE SHEET 9-03)
DILCO HILL DRAINAGE CHANNEL B (SEE SHEET 9-03)
EAST REPOSITORY CHANNEL (UPGRADED REACH SEE SHEET 9-03)
BRANCH SWALE B
BRANCH SWALE C
BRANCH SWALE A
STA 18+50.0 BEGIN CHANNEL IMPROVEMENTS
EDGE OF MINE WASTE
BRANCH SWALE H
REPOSITORY BOUNDARY
ROCK JETTY
NICKPOINT
EVAPORATION PONDS

1 / 9-07 NORTH CELL EARTHEN BERM
1 / 9-08 RUNOFF CONTROL DITCH
1 / 9-04 ROCK CHECK DAM
1 / 9-06 DILCO HILL CONFLUENCE
1 / 9-09 RIPRAP CHUTE
1 / 9-04 ROCK CHECK DAM
1 / 9-04 ROCK CHECK DAM
1 / 9-05 NORTH DIVERSION CHANNEL IMPROVEMENTS
A / 9-04
B / 9-04
C / 9-04
D / 9-04
E / 9-04
F / 9-04

N 1692972.55
E 2526208.86
N 1690981.05
E 2526624.49
N 1690875.76
E 2525414.15

0 200 400
SCALE IN FEET

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	CF	ISSUED FOR 30% DESIGN

DESIGNED J ERICKSON
CHECKED N HAWS
APPROVED C CUMBERS

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UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO
NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MILL SITE REPOSITORY AREA STORMWATER CONTROLS
FINAL CONDITION

SHEET 9-02
233001048

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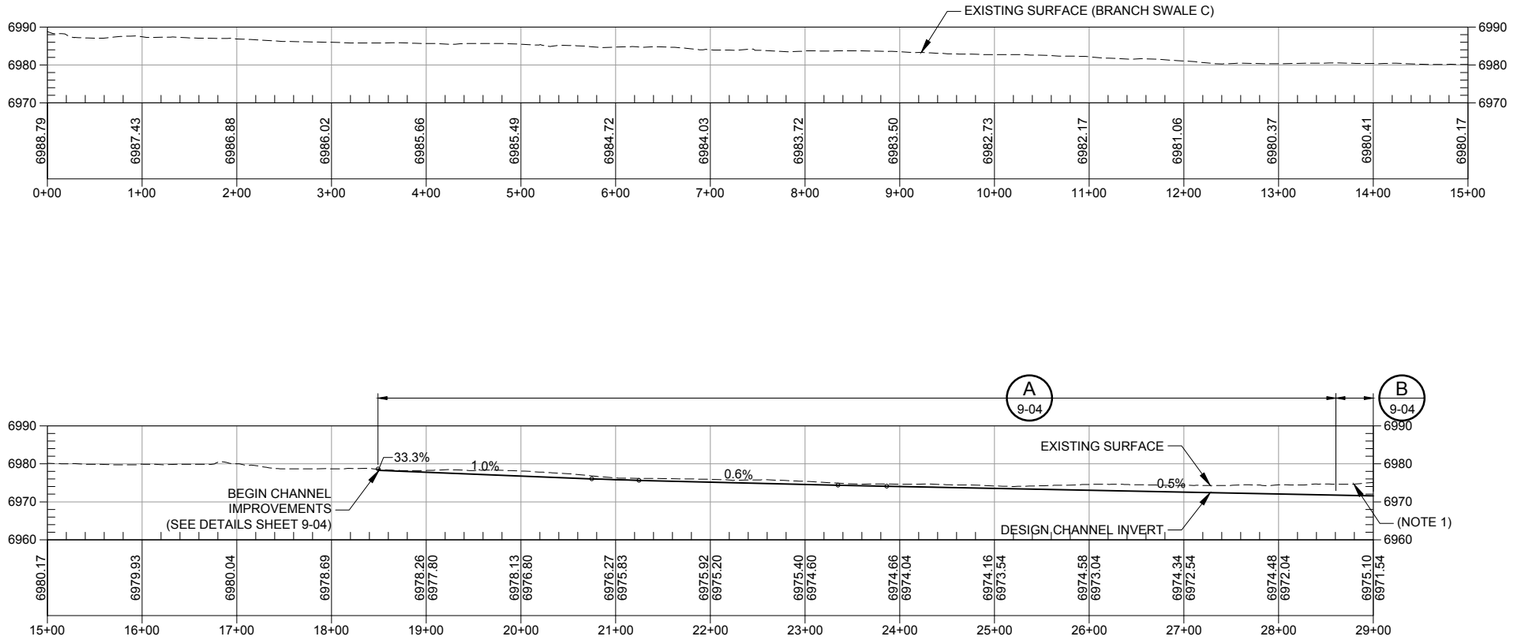
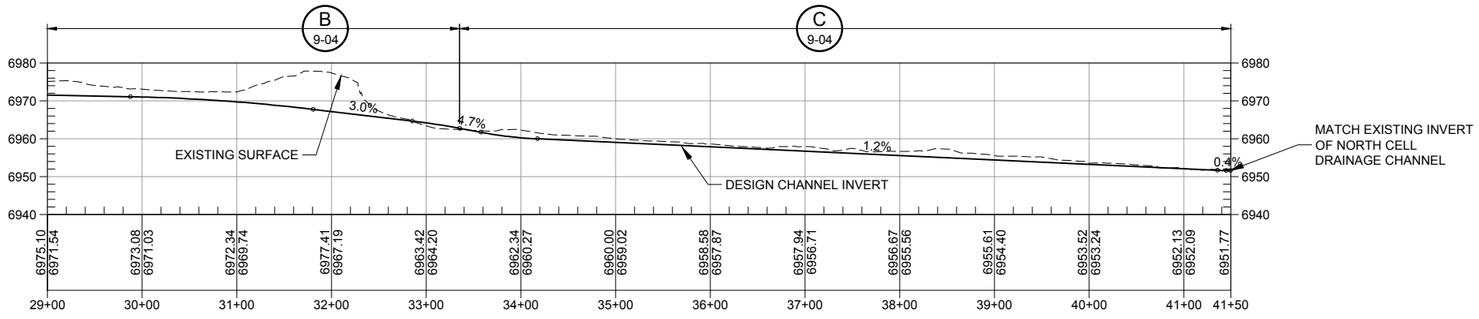
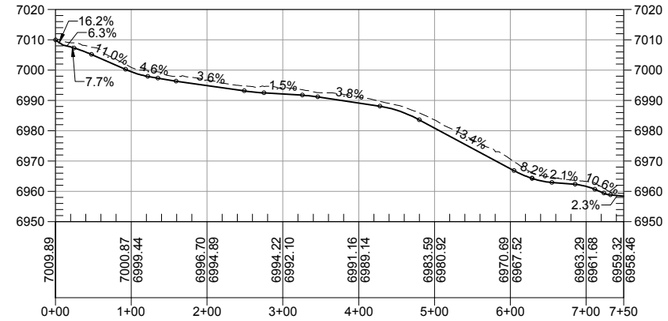




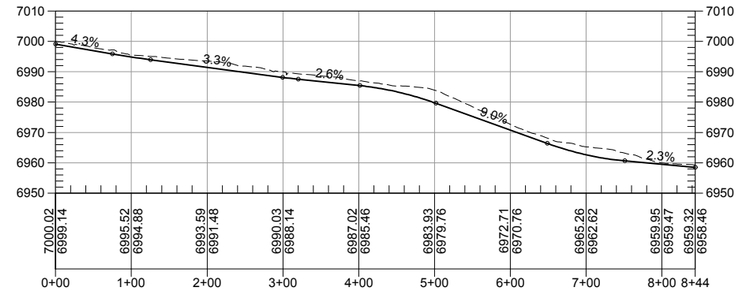
1 9-03 EAST REPOSITORY DRAINAGE CHANNEL PROFILE

HORZ 0 80 160
VERT 0 20 40
SCALE IN FEET



2 9-03 DILCO HILL DRAINAGE CHANNEL A PROFILE

HORZ 0 100 200
VERT 0 25 50
SCALE IN FEET



3 9-03 DILCO HILL DRAINAGE CHANNEL B PROFILE

HORZ 0 100 200
VERT 0 25 50
SCALE IN FEET

NOTE(S):

1. REMOVE EXISTING SEDIMENT ACCUMULATION IN CHANNEL

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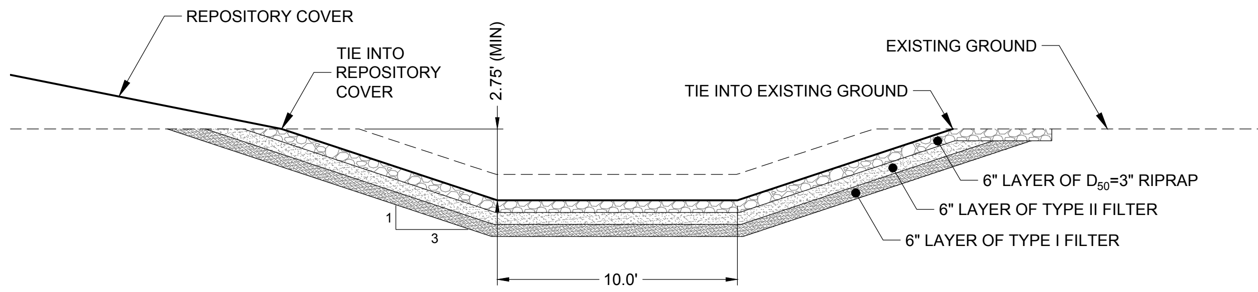
DESIGNED J ERICKSON
CHECKED N HAWS
APPROVED J CUMBERS

MWH now part of Stantec

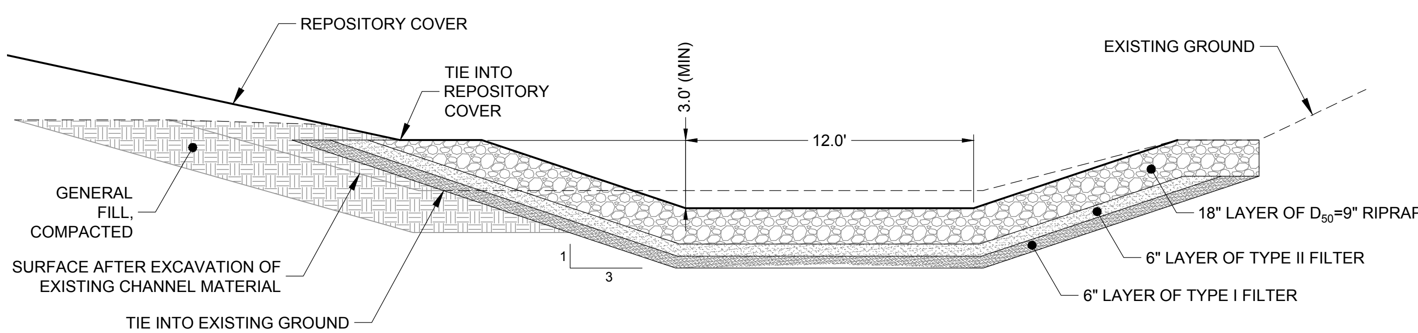
UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO
NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MILL SITE REPOSITORY AREA STORMWATER CONTROLS
REPOSITORY CHANNEL PROFILES

SHEET 9-03

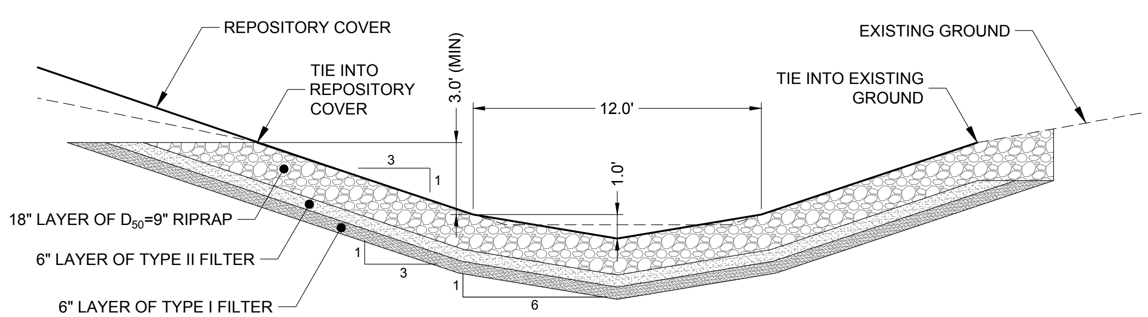
233001048



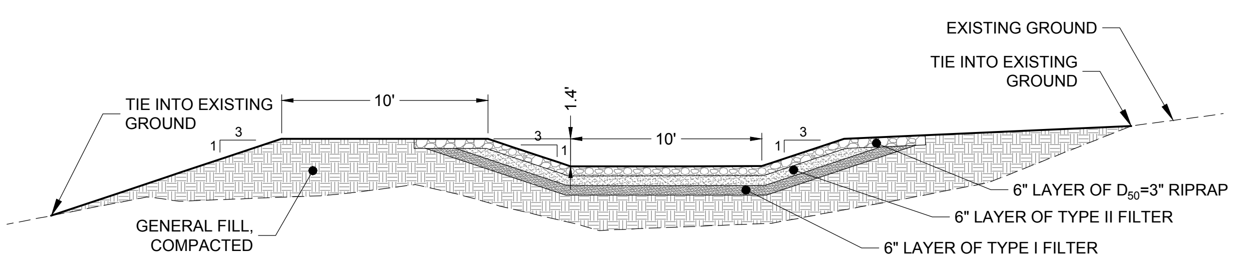
A 9-04 EAST REPOSITORY DRAINAGE CHANNEL TYPICAL SECTION
STA 18+50.0 TO 28+30.0 (NOT TO SCALE)



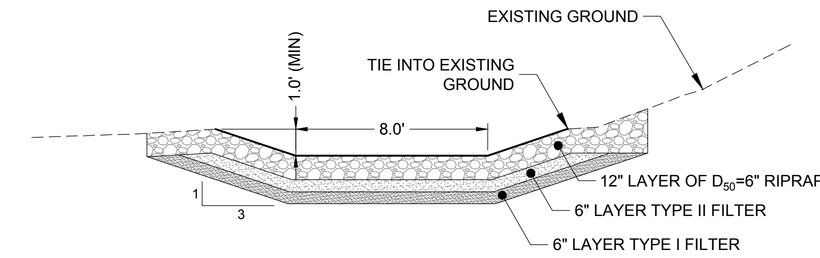
B 9-04 EAST REPOSITORY DRAINAGE CHANNEL TYPICAL SECTION
SECTION 28+30.0 TO 34+60.0 (NOT TO SCALE)



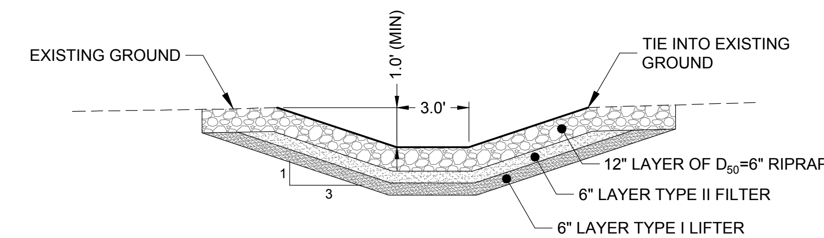
C 9-04 EAST REPOSITORY DRAINAGE CHANNEL TYPICAL SECTION
SECTION 34+60.0 TO 41+39.0 (NOT TO SCALE)



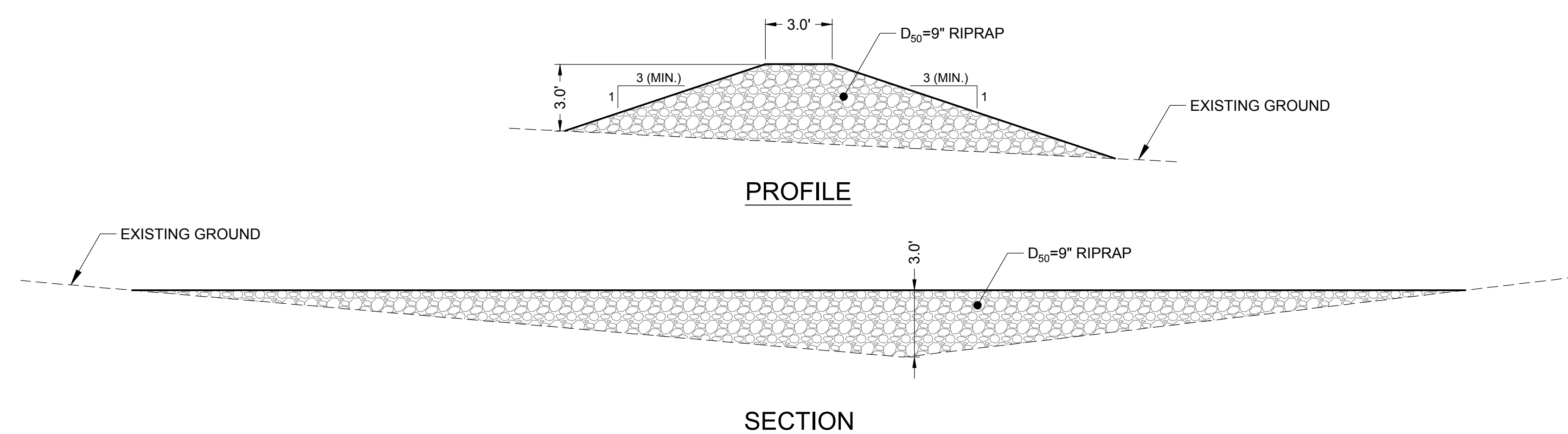
F 9-04 RUNNOFF CONTROL DITCH
(NOT TO SCALE)



D 9-04 DILCO HILL DRAINAGE CHANNEL A TYPICAL SECTION
(NOT TO SCALE)



E 9-04 DILCO HILL DRAINAGE CHANNEL B TYPICAL CHANNEL
(NOT TO SCALE)



1 9-04 TYPICAL ROCK CHECK DAM PROFILE AND SECTION
(NOT TO SCALE)

NOTE:

1. CONSTRUCT ROCK CHECK DAM TO 3' DEPTH AT DEEPEST POINT AND FILL ACROSS THE RAVINE PERPENDICULAR TO THE PREDOMINANT DRAINAGE FLOWPATH.

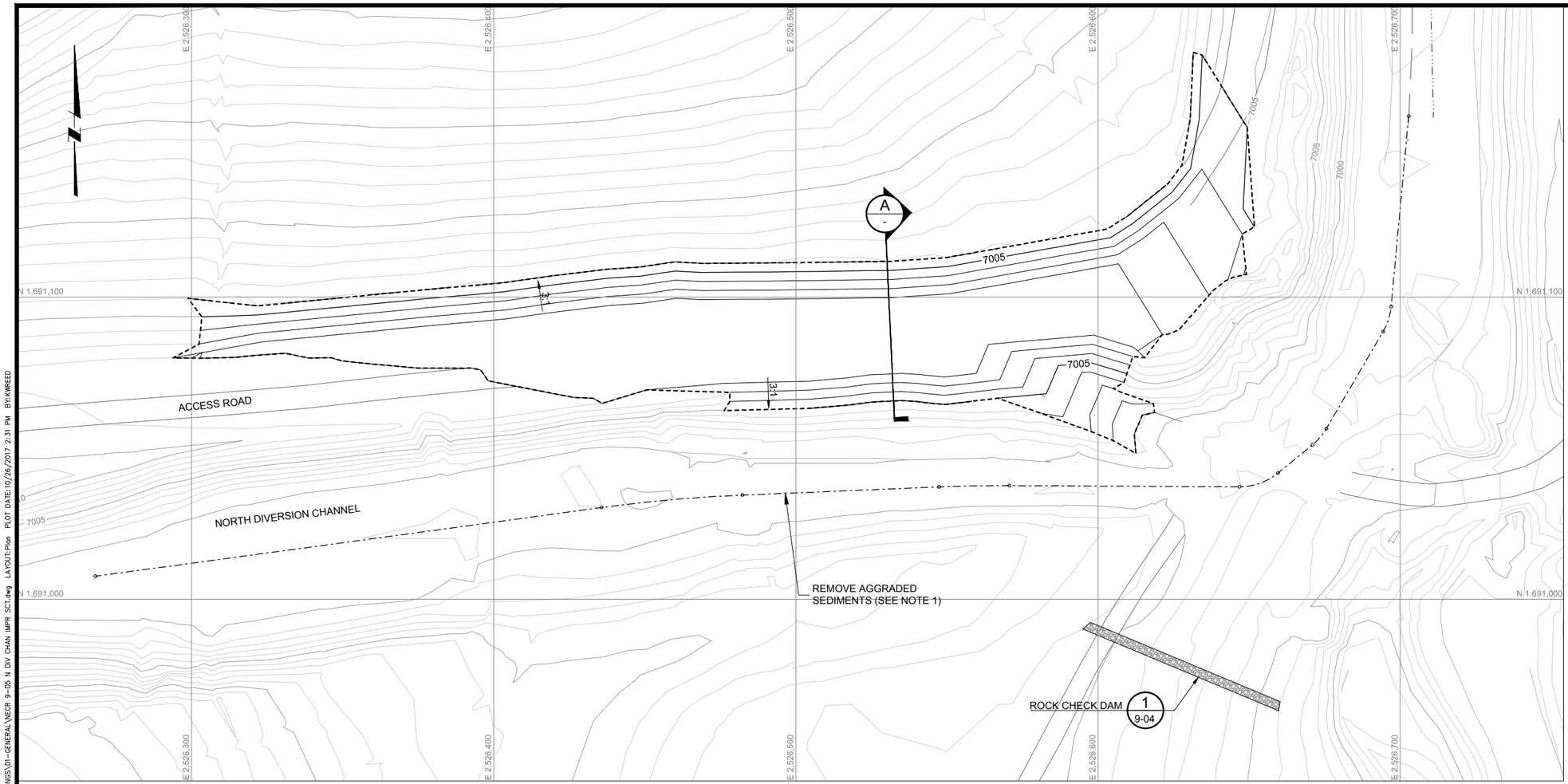
REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	CF	ISSUED FOR 30% DESIGN

DESIGNED J ERICKSON
CHECKED N HAWS
APPROVED J CUMBERS

MWH now part of Stantec

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO
NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MILL SITE REPOSITORY AREA STORMWATER CONTROLS
DETAILS

SHEET 9-04
233001048



1 / 9-05 NORTH DIVERSION CHANNEL IMPROVEMENTS

0 20 40

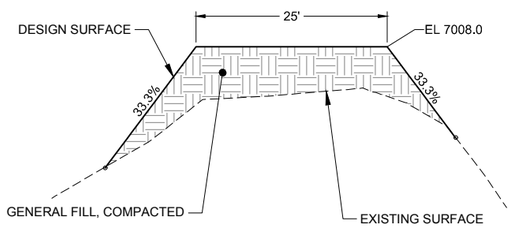
SCALE IN FEET

LEGEND:

- 7200 — EXISTING INVERT SURFACE CONTOUR & ELEVATION, FEET
- 7200 — PROPOSED INVERT SURFACE CONTOUR & ELEVATION, FEET
- DRAINAGE CHANNEL
- BRANCH SWALE
- DIVERSION CHANNEL

NOTES:

1. REMOVE AGGRADED SEDIMENTS ALONG THIS ALIGNMENT STARTING AT STA 0+00. MAINTAIN A SLOPE BETWEEN 0.5% AND 0.7% TO TIE INTO EXISTING TOPOGRAPHY AT STATION 5+25.



A / - NORTH DIVERSION CHANNEL IMPROVEMENTS SECTION

0 10 20

SCALE IN FEET

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	CF	ISSUED FOR 30% DESIGN

DESIGNED J ERICKSON

CHECKED N HAWS

APPROVED J CUMBERS

MWH. now part of Stantec

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UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE

McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN

MILL SITE REPOSITORY AREA STORMWATER CONTROLS

NORTH DIVERSION CHANNEL IMPROVEMENTS

SHEET 9-05

233001048

LEGEND:

- 7200 — EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- DRAINAGE CHANNEL
- EXISTING BRANCH SWALE
- 7200 — PROPOSED SURFACE CONTOUR & ELEVATION, FEET
- LIMITS OF EARTHWORK

EAST REPOSITORY CHANNEL (SEE SHEET 9-03)

C 9-04

REPOSITORY COVER

35+49

7+50 (CHANNEL A)

8+44 (CHANNEL B)

STA 6+25.0 BEGIN
D_{50} = 9" RIPRAP

STA 6+25.0 BEGIN
D_{50} = 9" RIPRAP

D 9-04

E 9-04

B 9-04

DILCO HILL DRAINAGE CHANNEL B (SEE SHEET 9-03)

DILCO HILL DRAINAGE CHANNEL A (SEE SHEET 9-03)

E 2,525,700

E 2,526,000

E 2,526,300

N 1,692,600

6980 6985 6990 6995 7000 7045

37+00 36+00 35+00 34+00 33+00 32+00 31+00 8+00 7+00 6+00 5+00 4+00 3+00 2+00 1+00 0+00

1 9-06 DILCO HILL CONFLUENCE - PLAN

SCALE IN FEET 0 30 60

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	CF	ISSUED FOR 30% DESIGN

DESIGNED J ERICKSON
CHECKED N HAWS
APPROVED J CUMBERS

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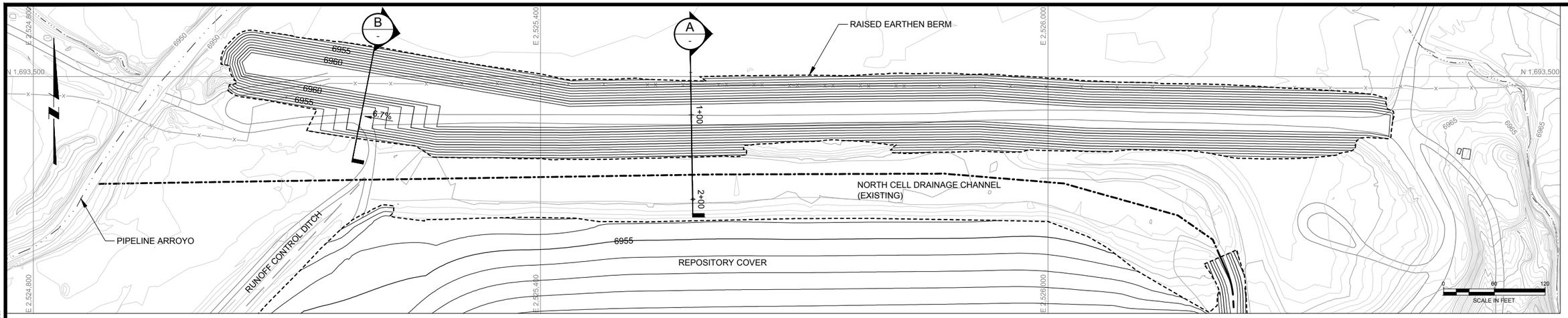
UNC GE

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO
NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MILL SITE REPOSITORY AREA STORMWATER CONTROLS
DILCO HILL CHANNEL CONFLUENCE

SHEET 9-06

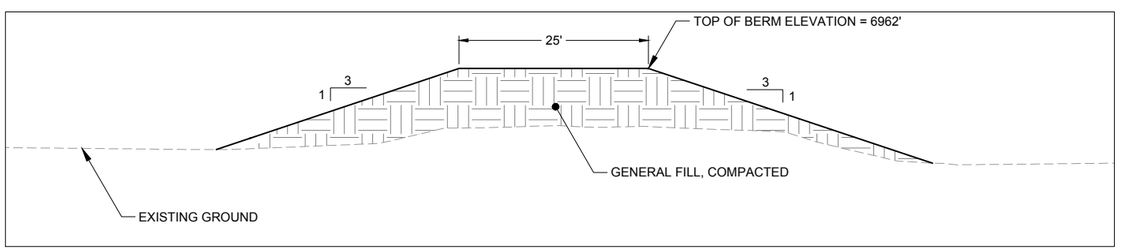
233001048

pw:\\amerypwin103.mwhglobal.com:AM_PROJECTS02\Documents_General Electric\GE NECR Design\Civil\Sheet Sets\NECR-30%_DESIGN_DRAWINGS\01-GENERAL\NECR 9-06 DILCO HILL CONFLUANCE.dwg LAYOUT:Plan PLOT DATE:10/27/2017 2:44 PM BY:CAFOWLER

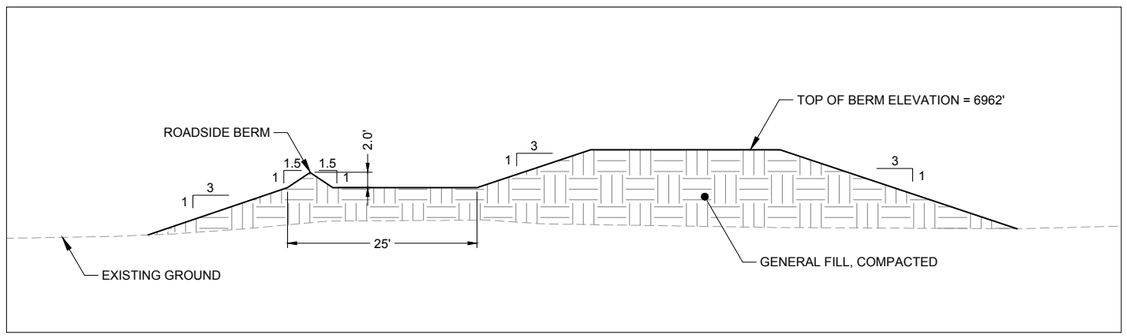


LEGEND:

- 7200 — EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- DRAINAGE CHANNEL
- DIVERSION CHANNEL
- ROADS
- NATURAL DRAINAGE
- EXISTING FENCE
- 7200 — PROPOSED SURFACE CONTOUR & ELEVATION, FEET
- LIMITS OF EARTHWORK



A - SECTION A - RAISED EARTHEN BERM TYPICAL SECTION
(NOT TO SCALE)



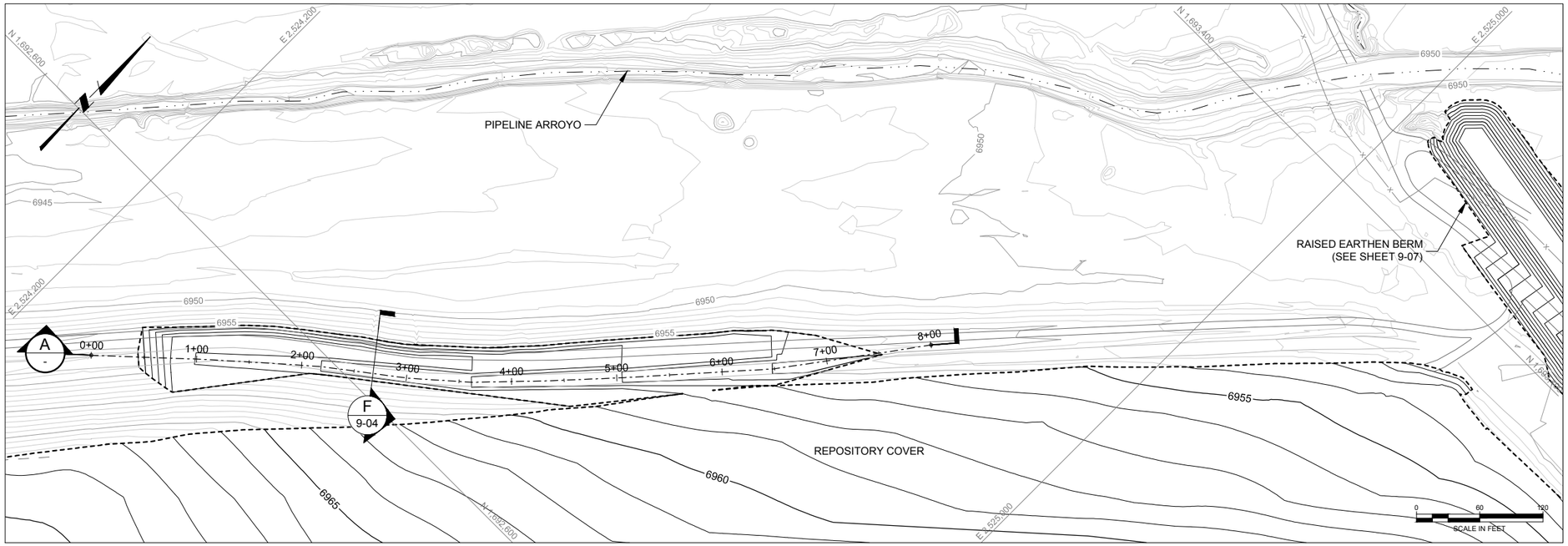
B - SECTION B - RAISED EARTHEN BERM WITH ACCESS RAMP TYPICAL SECTION
(NOT TO SCALE)

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	CF	ISSUED FOR 30% DESIGN

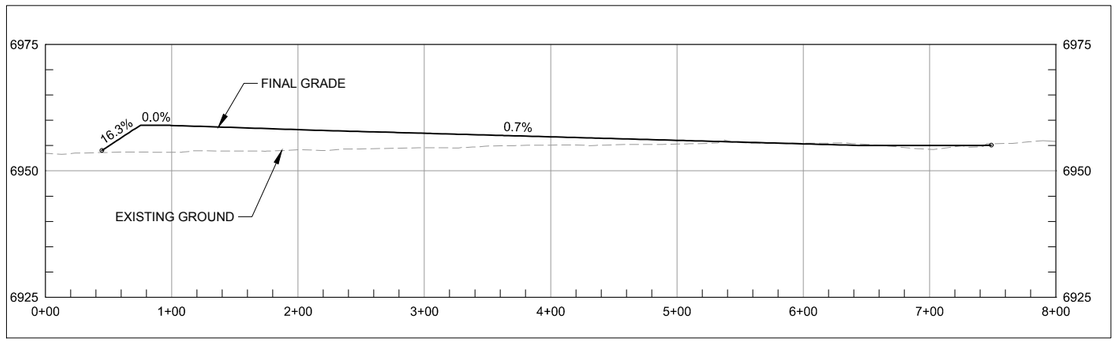
DESIGNED J ERICKSON
CHECKED N HAWS
APPROVED J CUMBERS

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO
NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MILL SITE REPOSITORY AREA STORMWATER CONTROLS
NORTH CELL EARTHEN BERM

SHEET
9-07
233001048



1 / 9-08 RUNOFF CONTROL DITCH
PLAN VIEW



A / - PROFILE A - RUNOFF CONTROL DITCH

LEGEND:

- 7200 — EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- DRAINAGE CHANNEL
- ROADS
- NATURAL DRAINAGE
- 7200 — PROPOSED SURFACE CONTOUR & ELEVATION, FEET
- LIMITS OF EARTHWORK

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN

DESIGNED J ERICKSON
CHECKED N HAWS
APPROVED J CUMBERS

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO
NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MILL SITE REPOSITORY AREA STORMWATER CONTROLS
RUNOFF CONTROL DITCH - PLAN AND PROFILE

SHEET 9-08
233001048

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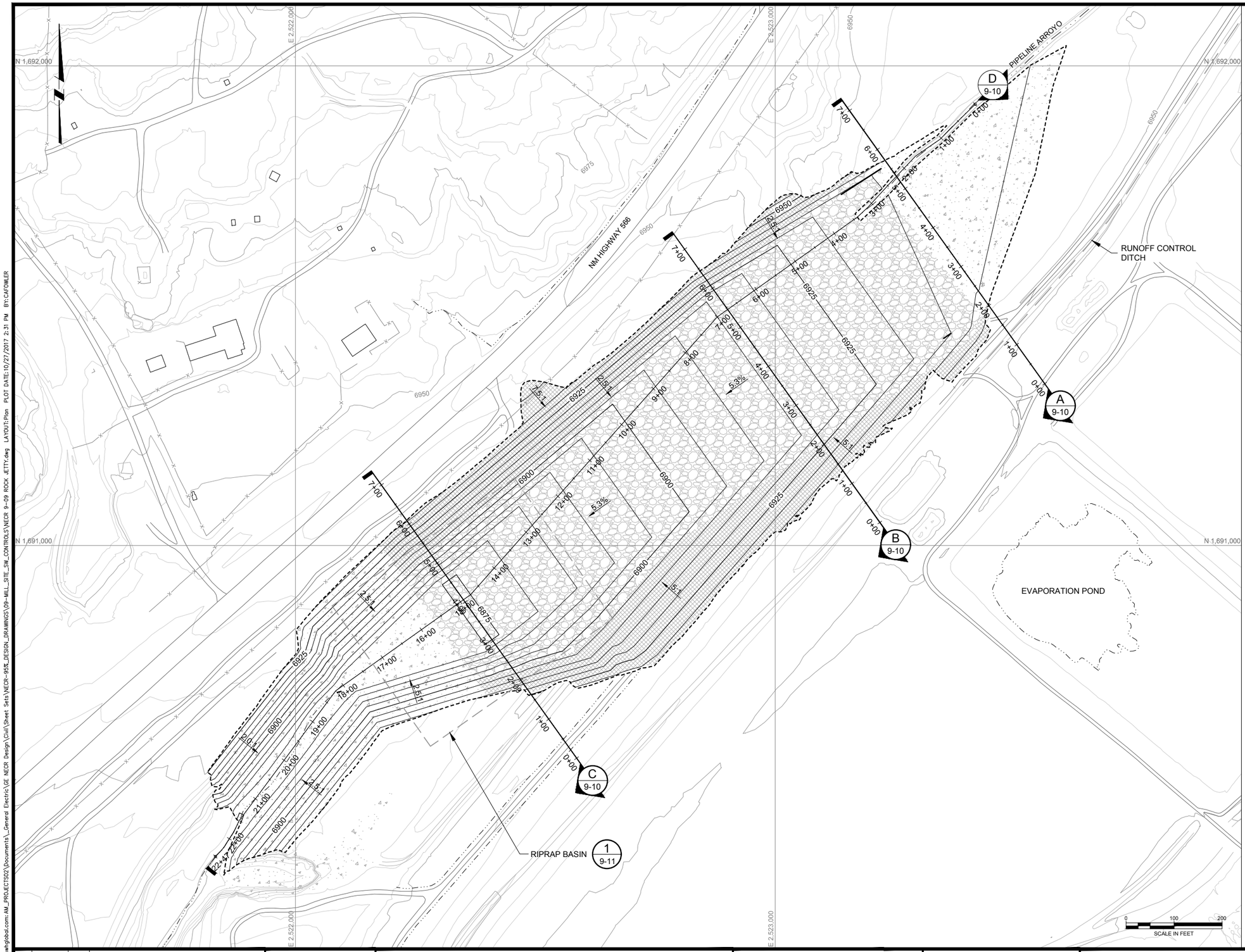

LEGEND:

- EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- PROPOSED SURFACE CONTOUR & ELEVATION, FEET
- DRAINAGE CHANNEL
- ROADS
- NATURAL DRAINAGE
- EXISTING FENCE
- LIMITS OF EARTHWORK
- D_{50} = 27" RIPRAP
- D_{50} = 3" RIPRAP
- BOTTOMLAND SEED MIX

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
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DESIGNED J ERICKSON
CHECKED N HAWS
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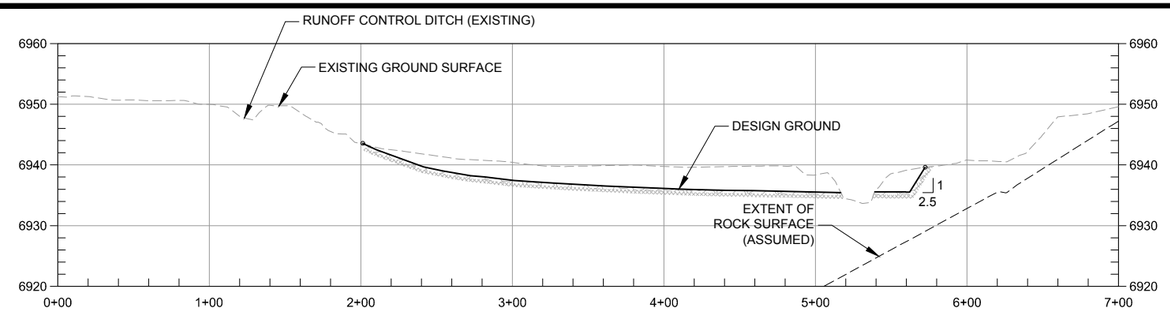
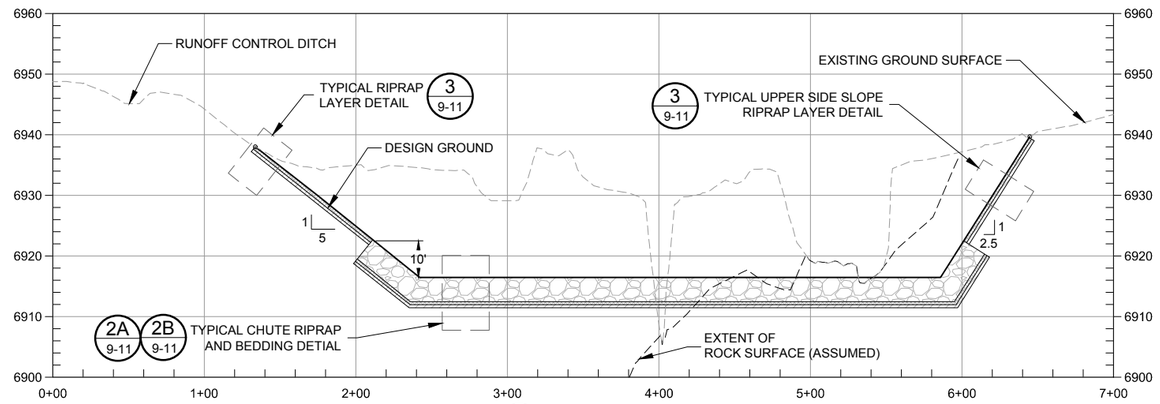
McKINLEY COUNTY, NEW MEXICO
NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MILL SITE REPOSITORY AREA STORMWATER CONTROLS
RIPRAP CHUTE

SHEET 9-09

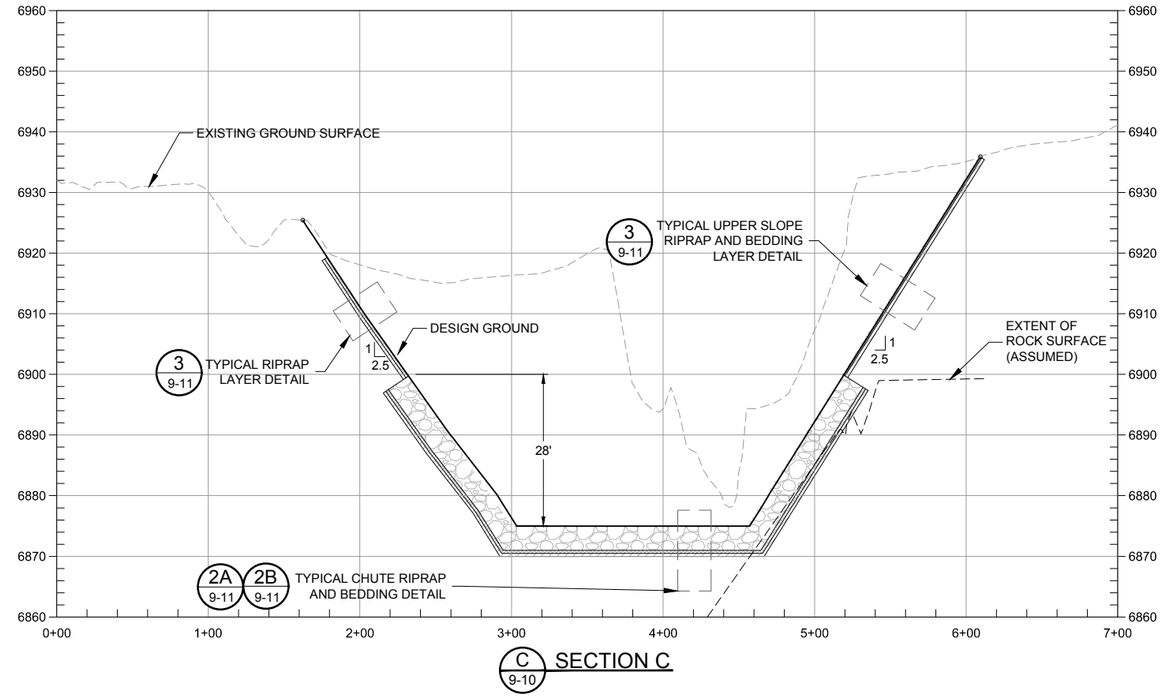
233001048



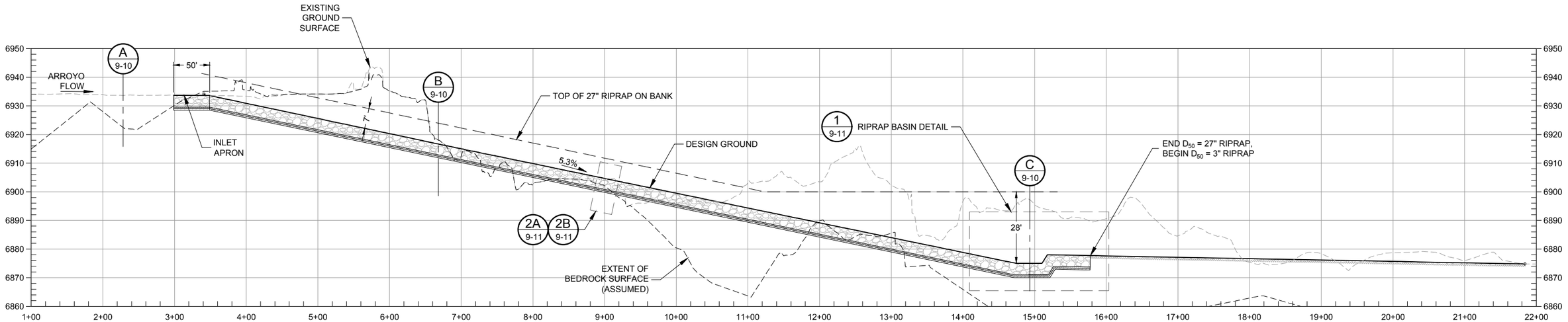
A 9-10 SECTION A



B 9-10 SECTION B



C 9-10 SECTION C



D 9-10 SECTION D

HORZ 0 70 140
VERT 0 17.5 35
SCALE IN FEET

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	03/15/16	RW	ISSUED FOR 30% DESIGN

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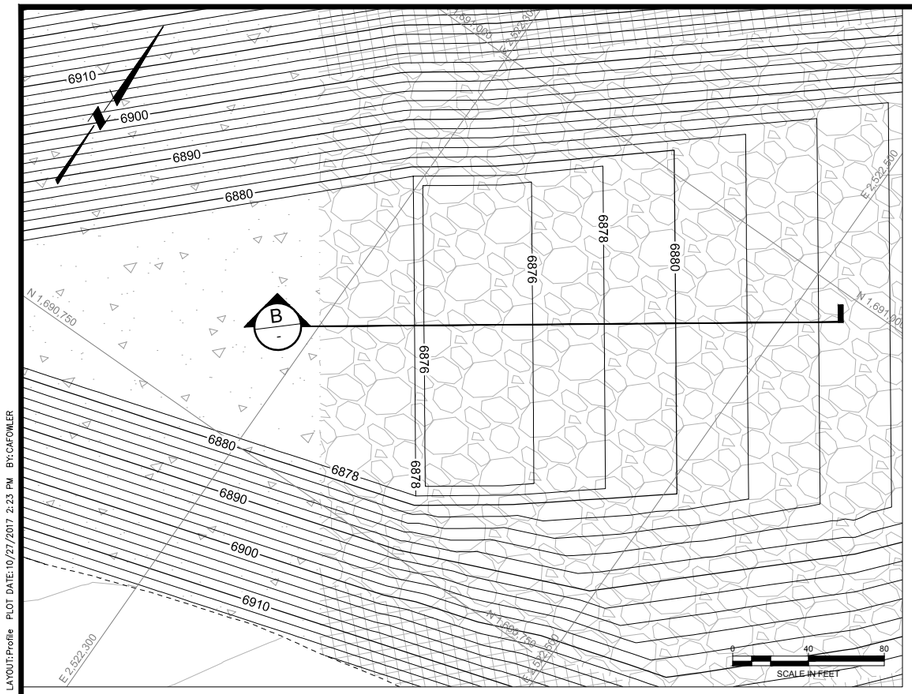
CHECKED N HAWS
APPROVED J CUMBERS

MWH. now part of Stantec

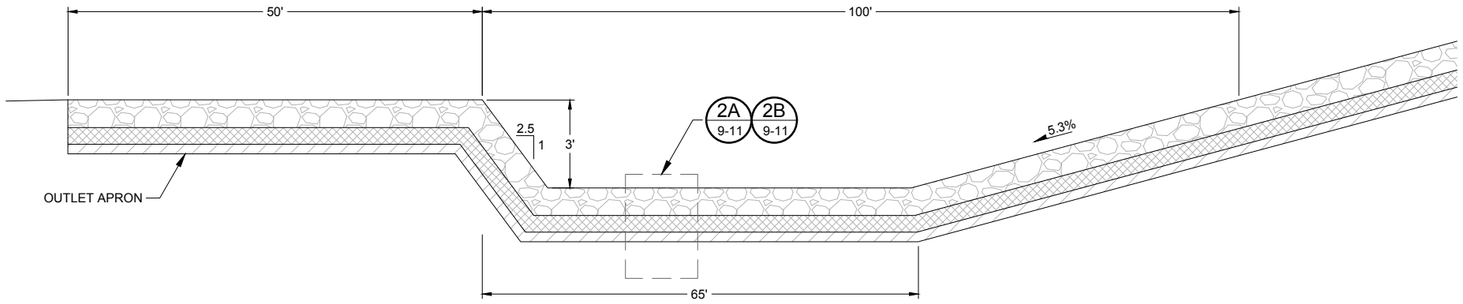
UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO
NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MILL SITE REPOSITORY AREA STORMWATER CONTROLS
RIPRAP CHUTE SECTIONS

SHEET 9-10

233001048



1 / 9-11 RIPRAP BASIN - PLAN



B / - SECTION B - RIPRAP BASIN
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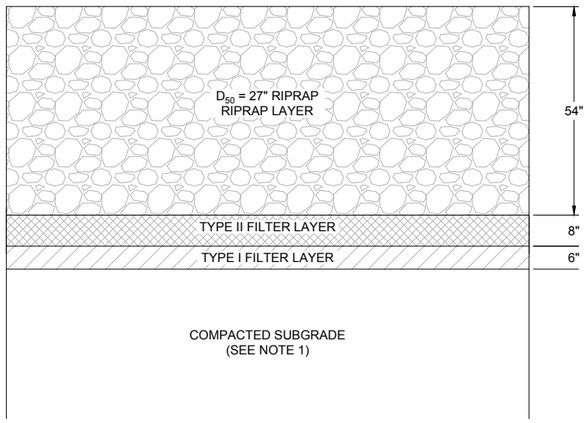
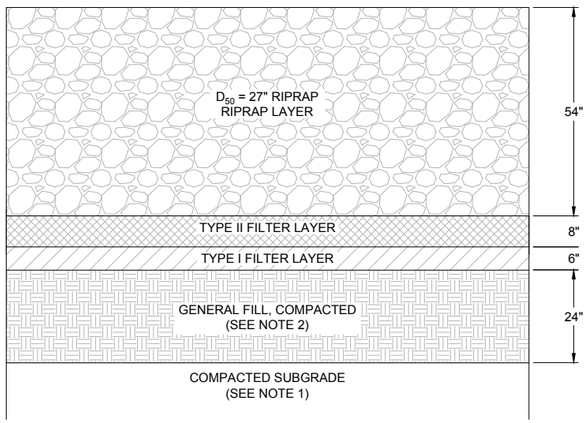
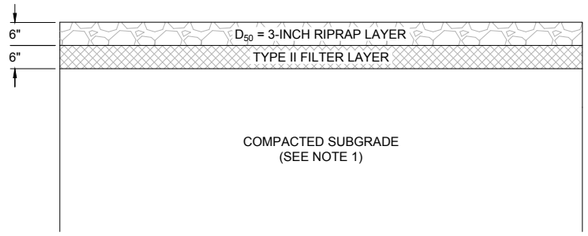


2A / 9-11 TYPICAL CHUTE RIPRAP AND BEDDING DETAIL
FOR AREAS OF CUT (NOT TO SCALE)



2B / 9-11 TYPICAL CHUTE RIPRAP AND BEDDING DETAIL
FOR AREAS OF FILL (NOT TO SCALE)



3 / 9-11 TYPICAL UPPER SIDE SLOPE RIPRAP AND BEDDING DETAIL
(NOT TO SCALE)

NOTES:

1. PREPARE AND COMPACT UPPER FOOT TO MINIMUM 95% OF MAXIMUM DRY DENSITY PER STANDARD PROCTOR.
2. COMPACT TO 95% MAXIMUM DRY DENSITY PER STANDARD PROCTOR IN 6 INCH LIFTS.

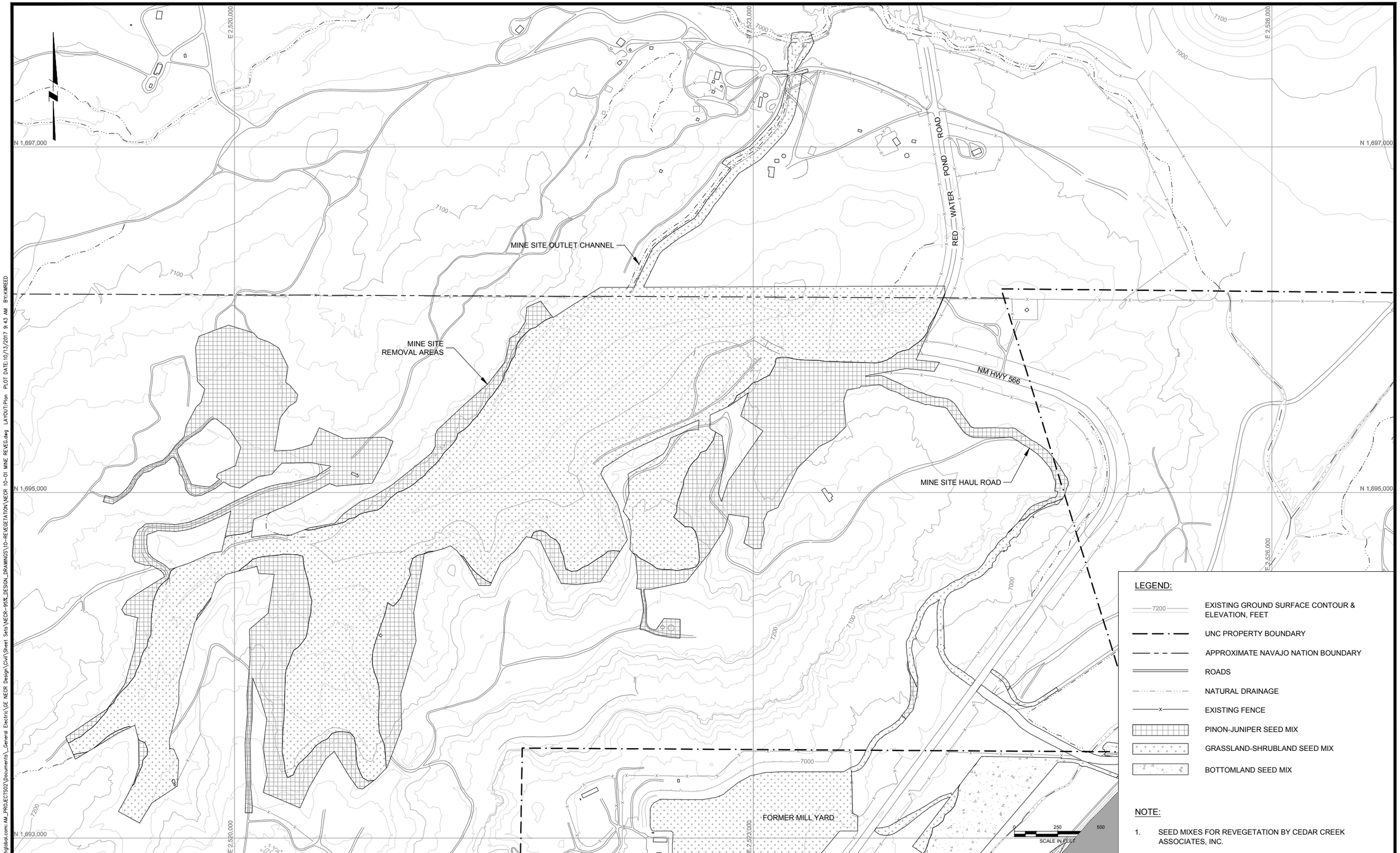
REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	03/15/16	RW	ISSUED FOR 30% DESIGN

DESIGNED J ERICKSON
CHECKED N HAWS
APPROVED J CUMBERS

MWH now part of Stantec

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO
NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MILL SITE REPOSITORY AREA STORMWATER CONTROLS
RIPRAP CHUTE DETAILS

SHEET
9-11
233001048



LEGEND:

- 7200 — EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- UNC PROPERTY BOUNDARY
- APPROXIMATE NAVAJO NATION BOUNDARY
- ROADS
- NATURAL DRAINAGE
- EXISTING FENCE
- PINON-JUNIPER SEED MIX
- GRASSLAND-SHRUBLAND SEED MIX
- BOTTOMLAND SEED MIX

NOTE:

1. SEED MIXES FOR REVEGETATION BY CEDAR CREEK ASSOCIATES, INC.

REV	DATE	BY	DESCRIPTION
B	10/30/17	KR	ISSUED FOR 95% DESIGN
A	07/15/16	CF	ISSUED FOR 30% DESIGN

DESIGNED K REED
CHECKED M DAVIS
APPROVED J CUMBERS

MWH now part of Stantec

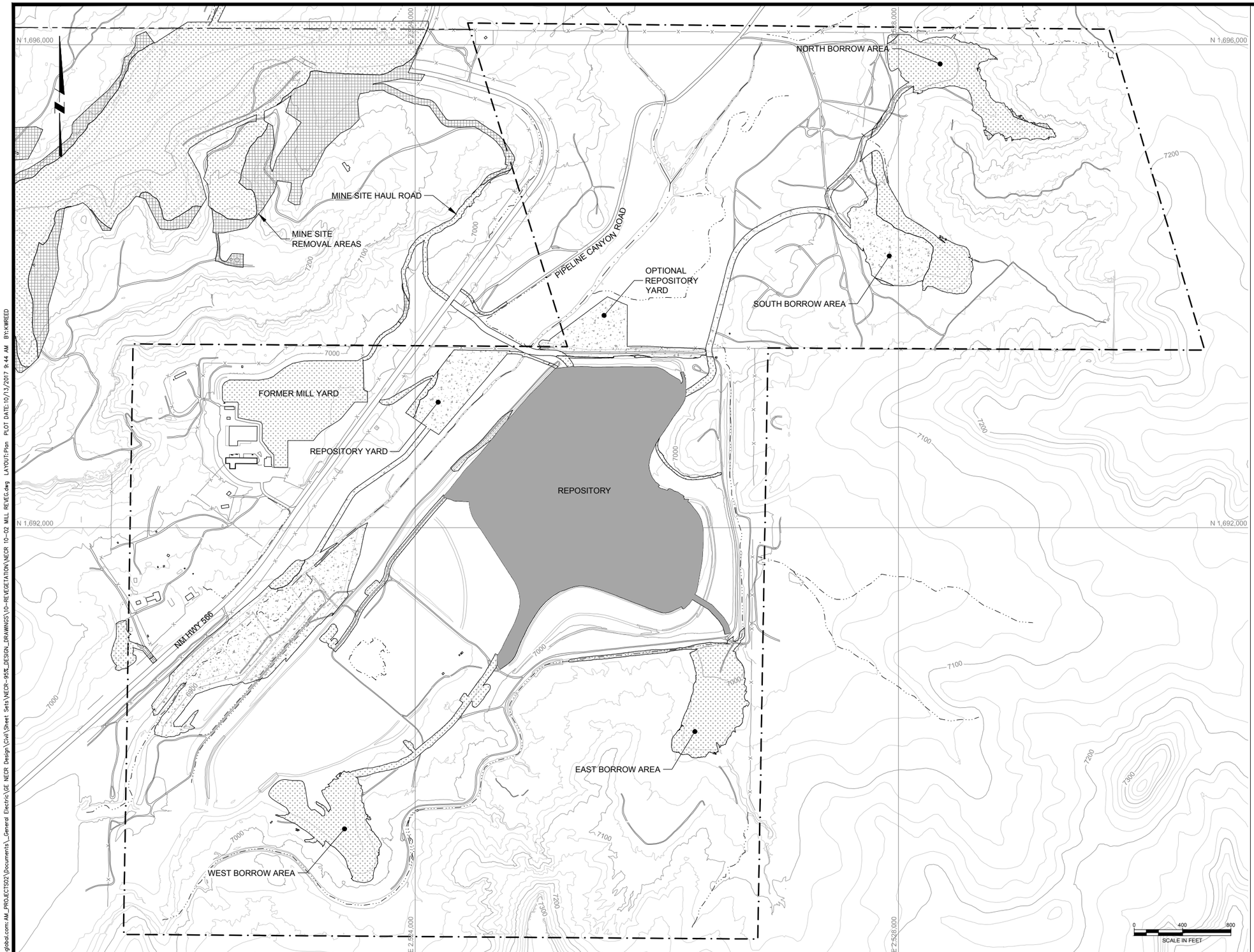
UNC GE

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MINE SITE REVEGETATION PLAN

SHEET
10-1
233001048

pw:\\cmerpwint03.mwhglobal.com:AM_PROJECTS02\Documents_General Electric\GE NECR Design\Civil\Sheet Sets\NECR-95%_DESIGN_DRAWINGS\10-REVEGETATION\NECR 10-01 MINE REVEG.dwg LAYOUT:Plan PLOT DATE:10/13/2017 9:43 AM BY:KWREED



LEGEND:

- 7200 — EXISTING GROUND SURFACE CONTOUR & ELEVATION, FEET
- UNC PROPERTY BOUNDARY
- APPROXIMATE NAVAJO NATION BOUNDARY
- ROADS
- NATURAL DRAINAGE
- EXISTING FENCE
- PINON-JUNIPER SEED MIX
- GRASSLAND-SHRUBLAND SEED MIX
- BOTTOMLAND SEED MIX
- REPOSITORY SEED MIX

NOTE:

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B	10/30/17	KR	ISSUED FOR 95% DESIGN
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DESIGNED K REED
CHECKED M DAVIS
APPROVED J CUMBERS

MWH. now part of Stantec

UNITED NUCLEAR CORPORATION AND NORTHEAST CHURCH ROCK MINE
McKINLEY COUNTY, NEW MEXICO

NORTHEAST CHURCH ROCK PROJECT 95% DESIGN
MILL SITE REVEGETATION PLAN

SHEET
10-2
233001048