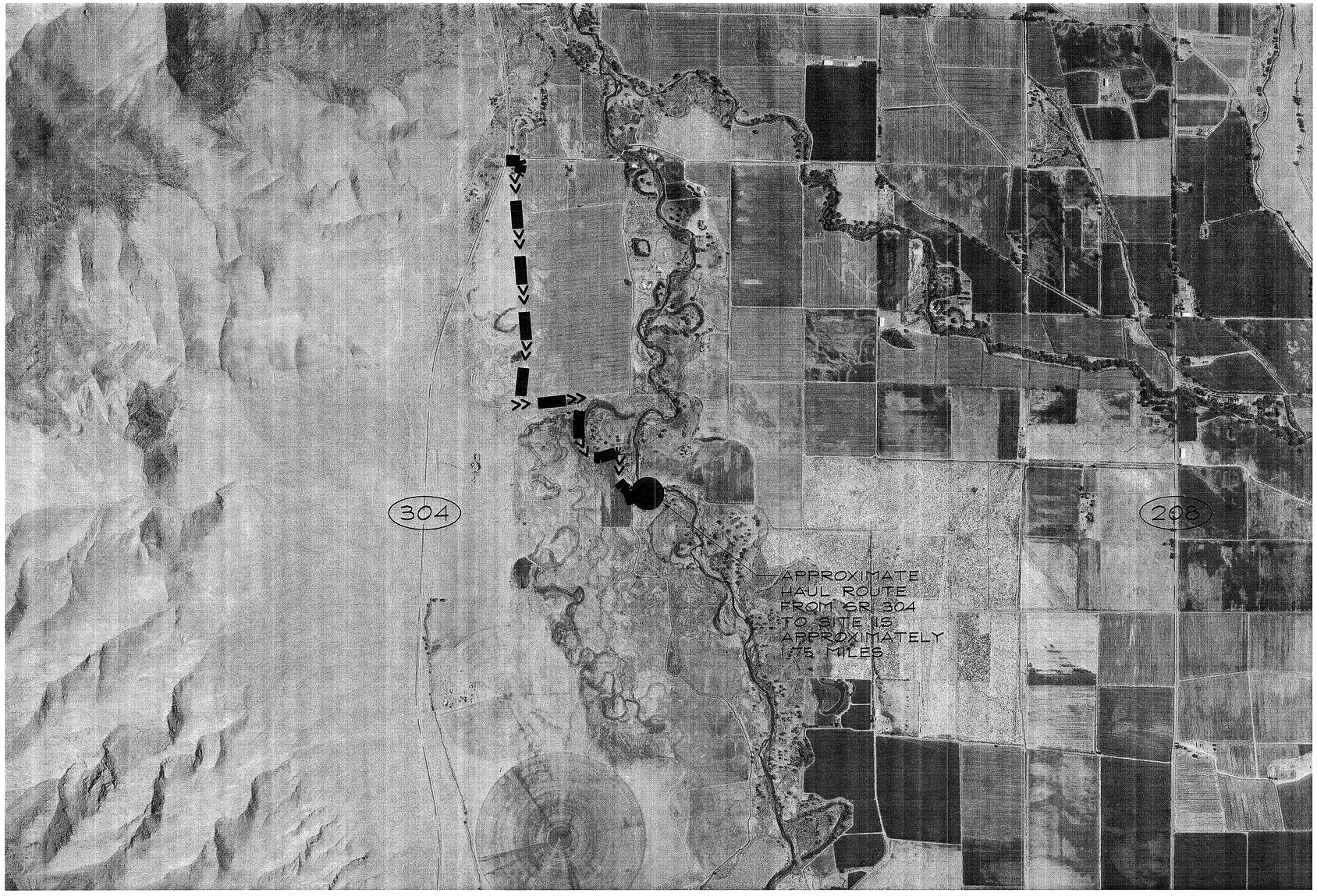
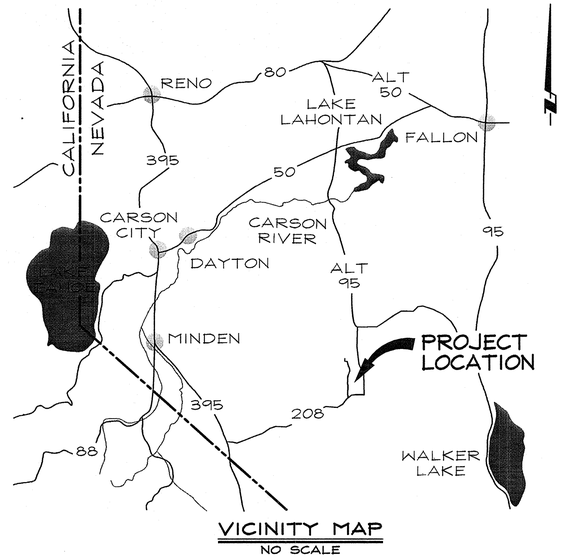
IMPROVEMENT PLANS FOR
MITCHELL BANK STABILIZATION PROJECT
WEST WALKER RIVER, LYON COUNTY



HAUL ROUTE
SCALE: 1" = 1000'

SCALE: 1" = 1000'



VICINITY MAP
NO SCALE

SHEET INDEX

C1 COVER SHEET
C2 NOTES, LEGEND & ABBREVIATIONS
C3 SITE PLAN
C4 DEWATERING & TEMPORARY EROSION CONTROL
C5 DETAILS

NOTE:
PROPERTY LINES SHOWN ARE APPROXIMATE ONLY & DO NOT REPRESENT A BOUNDARY SURVEY.

CALL BEFORE YOU DIG 1-800-227-2600

NO.	DATE	REVISION BLOCK	BY

1 0 1 2
1000' 0 1000' 2000'
SCALE: 1" = 1000'

R|O|Anderson
WWW.ROANDERSON.COM
MINDEN
1609 Esmeralda Ave
P.O. Box 2229
Minden, NV 89423
p 775.782.2322
f 775.782.7084
RENO
140 W. Huffaker Lane
Suite 507
Reno, NV 89511
p 775.782.2322
f 775.782.7084

MITCHELL BANK STABILIZATION
WEST WALKER RIVER

COVER SHEET

PROFESSIONAL ENGINEER
STATE OF NEVADA
NAGASEKHAR R. GORLA
Exp: 6/30/19
CIVIL
No. 17857
July 13, 2018

DRAWN: MCR	JOB: 1518-003
ENGINEER: NRG	DRAWING: SEE PLOT STAMP
SCALE: 1"=1000'	SHEET: C1
DATE: 07/06/2018	OF: 5 SHEETS

IMPROVEMENT PLANS - 07/06/2018

Y:\Client Files\1518\1518-003\CAD\Engineering\Improvement Plans\1518-003-C1.dwg 7/13/2018 2:41:54 PM Shaker Gorla

SYMBOLS

EXISTING NEW

DIRECTION OF NORTH

DECIDUOUS TREE

IDENTIFICATION OF SECTION POINTING IN THE DIRECTION IN WHICH THE SECTION IS VIEWED

SHEET NUMBER THAT THE SECTION APPEARS ON

100.00 FG — GRADE ELEVATION / GRADE DESCRIPTION

CENTERLINE MONUMENT

5300 — 5300 CONTOUR LINE: MAJOR INTERVAL

CONTOUR LINE: MINOR INTERVAL

ABBREVIATIONS

AASHTO.....AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
AB.....AGGREGATE BASE
AC.....ASPHALT CONCRETE
ADA.....AMERICANS WITH DISABILITIES ACT OF 1990
ADT.....AVERAGE DAILY TRAFFIC
ALT.....ALTITUDE
ANSI.....AMERICAN NATIONAL STANDARDS INSTITUTE
APN.....ASSESSOR'S PARCEL NUMBER
APPROX.....APPROXIMATELY
APWA.....AMERICAN PUBLIC WORKS ASSOCIATION
ARV.....AIR RELEASE VALVE
ASCE.....AMERICAN SOCIETY OF CIVIL ENGINEERS
ASTM.....AMERICAN SOCIETY OF TESTING AND MATERIALS
@.....AT

BC.....BEGIN CURVE
BCR.....BEGINNING OF CURB RETURN
BFE.....BASE FLOOD ELEVATION
BLD.....BUILDING
BOW.....BOTTOM OF WALL
BS.....BOTH SIDES
BW.....BACK OF WALK
BW.....BARBED WIRE

CAP.....CORRUGATED ALUMINUM PIPE
CAPA.....CORRUGATED ALUMINUM PIPE ARCH
C&G.....CURB AND GUTTER
CB.....CATCH BASIN
CC.....CARSON CITY
CF.....CUBIC FOOT
CHL.....CHAIN LINK
CI.....CURB INLET(THROUGH)
CL.....CENTER LINE
CMP.....CORRUGATED METAL PIPE
CO.....CLEAN OUT
COMP.....COMPACTION
CON.....CONIFEROUS
CRN.....CROWN OF ROAD
CSP.....CORRUGATED STEEL PIPE
CSPA.....CORRUGATED STEEL PIPE ARCH
CUL.....CULVERT INVERT
CY.....CUBIC YARD

°.....DEGREES
D.....DIRT
DEC.....DECIDUOUS
DF.....DEEPEND FOOTING
DG.....DECOMPOSED GRANITE
DI.....DROP INLET
DIA(ø).....DIAMETER

E.....EAST
EA.....EACH
EC.....END CURVE
ECR.....END OF CURB RETURN
ED.....EDGE
EGL.....ENERGY GRADE LINE
ELEC.....ELECTRICAL
ELEV.....ELEVATION
EP.....EDGE OF PAVEMENT
EPA.....ENVIRONMENTAL PROTECTION AGENCY
EVC.....END VERTICAL CURVE
EW.....EDGE OF WATER
EX.....EXISTING

F.....FAHRENHEIT
FC.....FACE OF CURB
FC.....FIRE CONNECTION
FEMA.....FEDERAL EMERGENCY MANAGEMENT AGENCY
FF.....FINISHED FLOOR
FG.....FINISHED GRADE
FH.....FIRE HYDRANT
FL.....FLOWLINE
FNC.....FENCE
FND.....FOUND MONUMENT, CORNER OR CONTROL POINT
FS.....FIRE STUB
FT(')....FOOT(FEET)

G.....GAS
G.....GATE
GA.....GUY ANCHOR
GB.....GRADE BREAK
GID.....GENERAL IMPROVEMENT DISTRICT
GP.....GUY POLE
GPM.....GALLONS PER MINUTE
GR.....GRAVEL
GS.....GROUND SHOT

H/C.....HANDICAP
HDPE.....HIGH DENSITY POLYETHYLENE
HDS.....HYDRAULIC DESIGN SERIES
HEC.....HYDRAULIC ENGINEERING CIRCULAR
HERCP.....HORIZONTAL ELLIPTICAL REINFORCED CONCRETE PIPE
HGL.....HYDRAULIC GRADE LINE
HH.....HAND HOLE
HORIZ.....HORIZONTAL
HW.....HOG WIRE

ID.....INNER DIAMETER
IE.....INVERT ELEVATION
IN(")....INCH
INC.....INCORPORATED
INTX.....INTERSECTION
IRRIG.....IRRIGATION
ITE.....INSTITUTE OF TRANSPORTATION ENGINEERS

LAT.....LATERAL
LOS.....LEVEL OF SERVICE
LS.....LUMP SUM
LT.....LIGHT

M.....METER
MAX.....MAXIMUM
MGD.....MILLION GALLONS PER DAY
MGSD.....MINDEN GARDNERVILLE SANITATION DISTRICT
MH.....MANHOLE
M.....METER
MAX.....MAXIMUM
MGD.....MILLION GALLONS PER DAY
MH.....MANHOLE
MI.....MILE
MIN.....MINIMUM
MISC.....MISCELLANEOUS
MIX.....MIXED
MPH.....MILES PER HOUR
MUTCD.....MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES

N.....NORTH
NAC.....NEVADA ADMINISTRATIVE CODE
NDEP.....NEVADA DIVISION OF ENVIRONMENTAL PROTECTION
NDOT.....NEVADA DEPARTMENT OF TRANSPORTATION
NE.....NORTHEAST
NEC.....NATIONAL ELECTRIC CODE
NFIP.....NATIONAL FLOOD INSURANCE PROGRAM
NSF.....NATIONAL SANITATION FOUNDATION
NO.....NUMBER
NOAA.....NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NOI.....NOTICE OF INTENT
NRCS.....NATIONAL RESOURCE CONSERVATION SERVICE
NRS.....NEVADA REVISED STATUTES
NTS.....NOT TO SCALE
NW.....NORTHWEST
NWS.....NATIONAL WEATHER SERVICE

OC.....ON CENTER
OD.....OUTER DIAMETER
OSHA.....OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970
O/H.....OVERHEAD

±.....PLUS OR MINUS
P.....POWER
PC.....POINT OF CURVATURE
PDL.....PADDLE
PE.....PROFESSIONAL ENGINEER LICENSED BY THE STATE OF NEVADA
PE.....POLY ETHYLENE
PED.....PEDESTAL
PEDX.....PEDESTRIAN CROSSING
PK.....PARKING
%.....PERCENT
P/L.....PROPERTY LINE
PMF.....PROBABLE MAXIMUM FLOOD
PNT.....POINT
PNT.....PAINT MARK
PO.....PUSH ON
PSI.....POUNDS PER SQUARE INCH
PT.....POINT OF TANGENCY
PUE.....PUBLIC UTILITY EASEMENT
PVC.....POLYVINYL CHLORIDE

R.....RADIUS
R.....ROCK
R.....RISER
RB.....RIVER BED
RCBC.....REINFORCED CONCRETE BOXED CULVERT
RCP.....REINFORCED CONCRETE PIPE
ROW.....RIGHT OF WAY
RTC.....REGIONAL TRANSPORTATION COMMISSION OF DOUGLAS COUNTY

S.....SIGN
S.....SLOPE
S.....SOUTH
SAD.....SURFACE AREA DISTURBANCE
SD.....STORM DRAIN
SDMH.....STORM DRAIN MANHOLE
SDR.....STANDARD DIMENSION RATIO
SE.....SOUTHEAST
SET.....SET MONUMENT, CORNER OR CONTROL POINT
SF.....SQUARE FOOT(FEET)
SPP.....STRUCTURAL PLATE PIPE
SPPA.....STRUCTURAL PLATE PIPE ARCH
SRV.....SERVICE
SS.....SANITARY SEWER
SSMH.....SANITARY SEWER MANHOLE
ST.....STREET
STA.....STATION
STB.....STUB
STD.....STANDARD
SW.....SOUTHWEST
S/W.....SIDEWALK
SWPPP.....STORMWATER POLLUTION PREVENTION PLAN

T.....TELEPHONE
TBC.....TOP BACK OF CURB
TC.....TOP OF CURB
TRB.....TRANSPORTATION RESEARCH BOARD
TOE.....TOE OF SLOPE
TOP.....TOP OF SLOPE
TOW.....TOP OF WALL
TR.....TREE
TRF.....TRAFFIC CONTROL
TV.....TELEVISION
TYP.....TYPICAL

U.....UTILITY
UBC.....UNIFORM BUILDING CODE
UG.....UNDERGROUND
UMC.....UNIFORM MECHANICAL CODE
UNO.....UNLESS NOTED OTHERWISE
UPC.....UNIFORM PLUMBING CODE
USACE.....UNITED STATES ARMY CORPS OF ENGINEERS
USBR.....UNITED STATES BUREAU OF RECLAMATION
USGS.....UNITED STATES GEOLOGICAL SURVEY

V.....VALVE
VA.....VAULT
VC.....VERTICAL CURVE
VG.....VALLEY GUTTER
VERT.....VERTICAL
VPC.....VERTICAL POINT OF CURVATURE
VPT.....VERTICAL POINT OF TANGENCY

W.....WEST
W/.....WITH
WEF.....WATER ENVIRONMENT FEDERATION
WL.....WALL
WK.....WALKWAY
WV.....WATER GATE VALVE
YR.....YEAR

NOTES

GENERAL

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE GENERAL SAFETY DURING CONSTRUCTION AND ALL WORK SHALL CONFORM TO PERTINENT SAFETY REGULATIONS AND CODES.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND/OR PROTECTION OF ALL EXISTING UTILITIES AND/OR STRUCTURES ADJACENT TO IMPROVEMENTS DURING CONSTRUCTION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EXCAVATION AND SHORING PROCEDURES.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE ENGINEER OF ANY DISCREPANCIES IN THE IMPROVEMENT PLANS.
5. CONTRACTOR SHALL OBTAIN A SWPPP AND NOI WITH THE STATE OF NEVADA, PRIOR TO CONSTRUCTION.
6. THE CONTRACTOR SHALL MAINTAIN A CLEAN PROJECT SITE, REMOVING CONSTRUCTION DEBRIS AT THE END OF EACH ACTIVITY. THE CONTRACTOR SHALL MAINTAIN DEBRIS FREE CONSTRUCTION ROUTES, ADJACENT STREETS AND STORM DRAIN SYSTEMS.

SITE & GRADING

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE OSHA REQUIREMENTS FOR EXCAVATION, THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION" 2012 EDITION, LYON COUNTY STANDARDS, AND SPECIAL REQUIREMENTS OF THE PERMIT. VIOLATIONS WILL RESULT IN THE STOPPAGE OF ALL WORK UNTIL THE VIOLATION IS CORRECTED.
2. NO WORK SHALL BE STARTED WITHOUT FIRST NOTIFYING THE DISTRICT MANAGER, ENGINEER AND AFFECTED PROPERTY OWNER(S) AT LEAST 2 WORKING DAYS BEFORE WORK IS COMMENCED.
3. SLOPES SHALL BE NO STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL UNLESS OTHERWISE NOTED.
4. FILLS SHALL BE PLACED IN ACCORDANCE WITH THE REQUIREMENTS OF THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION".
5. FILL AREAS SHALL BE CLEARED OF VEGETATION AND DEBRIS, SCARIFIED, AND BE APPROVED BY THE ENGINEER OF RECORD PRIOR TO THE PLACING OF FILL.
6. PROTECTIVE MEASURES AND TEMPORARY DRAINAGE PROVISIONS SHALL BE USED TO PREVENT EXCESSIVE PONDING AND PROTECT ADJOINING PROPERTIES DURING CONSTRUCTION OF IMPROVEMENTS.
7. DUST SHALL BE CONTROLLED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER, AND IN ACCORDANCE WITH THE AIR QUALITY PERMIT FROM THE NEVADA DIVISION OF ENVIRONMENTAL PROTECTION WHEN REQUIRED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE PERMITS WHEN REQUIRED.
8. ALL STREETS SHALL BE MAINTAINED FREE OF DUST AND MUD CAUSED BY GRADING OPERATIONS. ALL OPERATIONS SHALL COMPLY WITH THE REQUIREMENTS OF THE STORMWATER DISCHARGE PERMIT FROM THE NEVADA DIVISION OF ENVIRONMENTAL PROTECTION WHEN REQUIRED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE PERMITS WHEN REQUIRED.
9. THE OWNER'S ENGINEER OR SURVEYOR SHALL SET GRADE STAKES FOR ALL GRADING.
10. THE ENGINEER SHALL APPROVE ALL GRADING INCLUDING COMPACTION REQUIREMENTS AND THE STABILITY OF SLOPES CREATED, OR REMAINING.
11. IN THE EVENT OF CHANGES ARISING DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE ENGINEER WHO WILL DETERMINE AN ACCEPTABLE SOLUTION AND REVISING THE PLANS FOR REVIEW AND APPROVAL BY THE OWNER. NO CHANGES IN THE DESIGN WILL BE PERMITTED UNLESS WRITTEN APPROVAL IS GIVEN BY THE ENGINEER.
12. EXISTING BANKS SHALL BE RE-GRADED AT 3:1 UNLESS OTHERWISE NOTED.
13. ROCK TOE PROTECTION SHALL BE INSTALLED IN ACCORDANCE WITH APPROVED DETAIL IN AREAS AS SHOWN ON SITE SPECIFIC PLAN. ROCK TOE PROTECTION SHALL BE PLACED WITHIN 5 DAYS OF FINAL BANK GRADING.
14. ALL DISTURBED AREAS SHALL BE RE-SEEDED. RE-SEEDING SHALL BE FURNISHED AND INSTALLED BY OWNER.
15. OWNER SHALL FURNISH AND INSTALL BIO-ENGINEERING TREATMENTS. CONTRACTOR SHALL BE RESPONSIBLE WITH ASSISTING OWNER BY EXCAVATING TO ALLOW FOR INSTALLATION AND BACKFILLING ONCE TREATMENT IS INSTALLED.
16. INSTALL LOG VEINS PER APPROVED DETAIL. ELEVATIONS AND CONTROL FOR TOE, ANGLE AND KEY ARE LOCATED ON PROJECT SPECIFIC SHEET. FIELD ADJUSTMENT OF ANGLE AND LENGTH MAY BE REQUIRED DUE TO DYNAMIC NATURE OF THE SITES.
17. PROTECT EXISTING TREES AND RIPARIAN VEGETATION TO EXTENT POSSIBLE THROUGHOUT CONSTRUCTION. REMOVAL OF 6" DIAMETER TREES OR LARGER PROHIBITED WITHOUT OWNER APPROVAL UNLESS OTHERWISE NOTED.
18. NATIVE MATERIAL GENERATED FROM CHANNEL CLEARING OPERATIONS SHALL BE USED TO SHAPE FAILING BANKS TO CONTOURS AS SHOWN. EXCAVATE ONLY ENOUGH MATERIAL NECESSARY TO CONSTRUCT FAILING BANKS.
19. WORK SHALL BE PERFORMED WITHIN THE MEAN-HIGH WATER LEVEL WHICH IS COMMONLY REFEREED TO AS THE "CHANNEL BED". THIS INCLUDES STOCKPILING OF MATERIAL. CONTRACTOR SHALL ENSURE DE-WATERING PLAN ALLOWS FOR PROPER PROTECTION OF STOCKPILES AND EQUIPMENT.
20. RIVERINE ENVIRONMENTS ARE DYNAMIC SYSTEMS & SUBJECT TO CHANGE. THESE PLANS ARE BASED UPON A TOPOGRAPHIC SURVEYED PERFORMED IN SEPTEMBER 2017. PRIOR TO COMMENCING CONSTRUCTION THE CONTRACTOR SHALL INVESTIGATE THE SITE & SATISFY HIMSELF THAT CURRENT CONDITIONS GENERALLY MATCH THE PLANS. IF CURRENT SITE CONDITIONS ARE SIGNIFICANTLY DIFFERENT TO WARRANT A CHANGE IN CONTRACT PRICE OR SCHEDULE, THE CHANGE ORDER SHALL BE AGREED TO PRIOR TO COMMENCING CONSTRUCTION.
21. REMOVE & REPLACE EXISTING FENCES AS NECESSARY TO FACILITATE CONSTRUCTION. COORDINATE WITH OWNER PRIOR TO CONSTRUCTION. TEMPORARY FENCING MAY BE REQUIRED.

LINE TYPES

EXISTING	NEW	
----100----	----100----	CONTOUR - FIVE FOOT INTERVAL
----99----	----99----	CONTOUR - ONE FOOT INTERVAL
-x-x-x-x-	-x-x-x-x-	FENCE
---- -- -- ----	---- -- -- ----	PROPERTY LINE

SURVEY CONTROL

BASIS OF BEARING

N17°40'15"E -- NEVADA STATE PLANE WEST ZONE (NAD83) AS DETERMINED BY GPS STATIC OBSERVATIONS PROCESSED THROUGH NGS(OPUS)

DATUM

VERTICAL DATUM FOR THIS PROJECT IS NAVD 88 BASED UPON NGS BENCHMARK ON CP-12

ELEVATION = 4451.85'

IMPROVEMENT PLANS - 07/06/2018

NO.	DATE	REVISION BLOCK	BY

R|O|Anderson
WWW.ROANDERSON.COM

MINDEN
1603 Esmeralda Ave
P.O. Box 2229
Minden, NV 89423
p 775.782.2322
f 775.782.7084

RENO
140 W. Huffaker Lane
Suite 107
Reno, NV 89511
p 775.782.2322
f 775.782.7084

MITCHELL BANK STABILIZATION
WEST WALKER RIVER

LEGEND, ABBREVIATIONS, AND NOTES

PROFESSIONAL ENGINEER — NAGASEKHAR R. GORLA — Exp: 6/30/19 — CIVIL — No. 18557 — STATE OF NEVADA

July 18, 2018

DRAWN: MCR	JOB: 1518-003
ENGINEER: NRG	DRAWING: SEE PLOT STAMP
SCALE: NTS	SHEET: C2
DATE: 07/06/2018	OF: 5 SHEETS

Y:\Clients Files\1518\1518-003\CAD\Engineering\Improvement Plans\1518-003-C2.dwg 7/18/2018 2:47:46 PM Shaker Garcia

ESTIMATED QUANTITIES

LOG VEINS

A TOTAL OF FIVE (5) LOG VEINS

WILLOW BUNDLE REVETMENT= 200 EA

SITE #1
EARTH WORK:
CUT = 355 CY
FILL = 1161 CY
NET FILL = 1256 CY

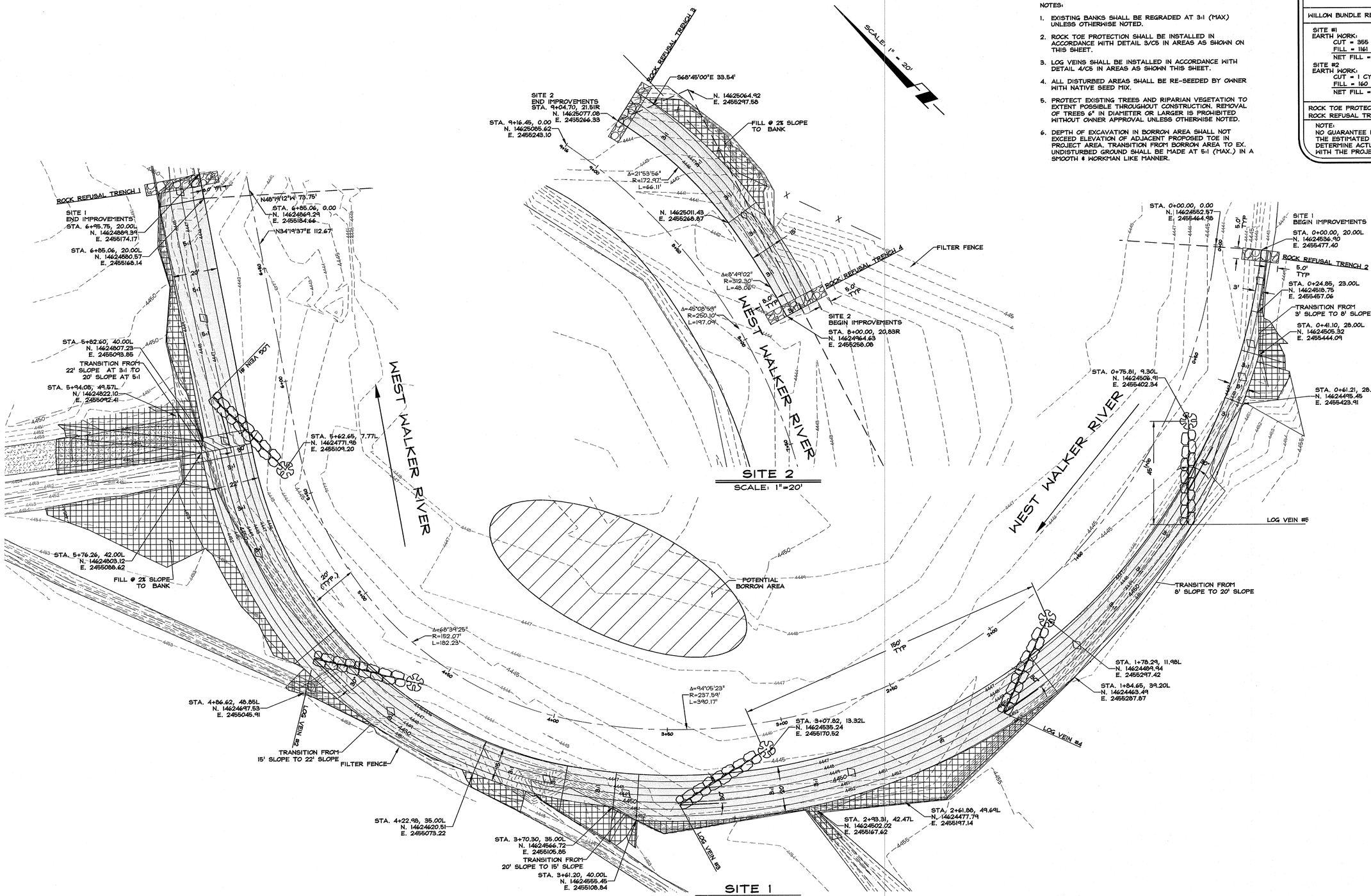
SITE #2
EARTH WORK:
CUT = 1 CY
FILL = 160 CY
NET FILL = 159 CY

ROCK TOE PROTECTION (RIP-RAP): 1,065 CY (1600 TONS)
ROCK REFUSAL TRENCH (RIP-RAP): 130 CY (195 TONS)

NOTE:
NO GUARANTEE IS MADE CONCERNING THE ACCURACY OF THE ESTIMATED QUANTITIES. THE CONTRACTOR SHALL DETERMINE ACTUAL QUANTITIES OF WORK ASSOCIATED WITH THE PROJECT.

NOTES:

1. EXISTING BANKS SHALL BE REGRADED AT 3:1 (MAX) UNLESS OTHERWISE NOTED.
2. ROCK TOE PROTECTION SHALL BE INSTALLED IN ACCORDANCE WITH DETAIL 5/C5 IN AREAS AS SHOWN ON THIS SHEET.
3. LOG VEINS SHALL BE INSTALLED IN ACCORDANCE WITH DETAIL 4/C5 IN AREAS AS SHOWN THIS SHEET.
4. ALL DISTURBED AREAS SHALL BE RE-SEEDED BY OWNER WITH NATIVE SEED MIX.
5. PROTECT EXISTING TREES AND RIPARIAN VEGETATION TO EXTENT POSSIBLE THROUGHOUT CONSTRUCTION. REMOVAL OF TREES 6" IN DIAMETER OR LARGER IS PROHIBITED WITHOUT OWNER APPROVAL UNLESS OTHERWISE NOTED.
6. DEPTH OF EXCAVATION IN BORROW AREA SHALL NOT EXCEED ELEVATION OF ADJACENT PROPOSED TOE IN PROJECT AREA. TRANSITION FROM BORROW AREA TO EX. UNDISTURBED GROUND SHALL BE MADE AT 5:1 (MAX.) IN A SMOOTH & WORKMAN LIKE MANNER.



NO.	DATE	REVISION BLOCK	BY

SCALE: 1" = 20'

R|O|Anderson
WWW.ROANDERSON.COM

MINDEN
1603 Esmeralda Ave
P.O. Box 2229
Minden, NV 89423
p 775.782.2321
f 775.782.7084

RENO
140 W. Huffaker Lane
Suite 507
Reno, NV 89511
p 775.782.2322
f 775.782.7084

MITCHELL BANK STABILIZATION
WEST WALKER RIVER

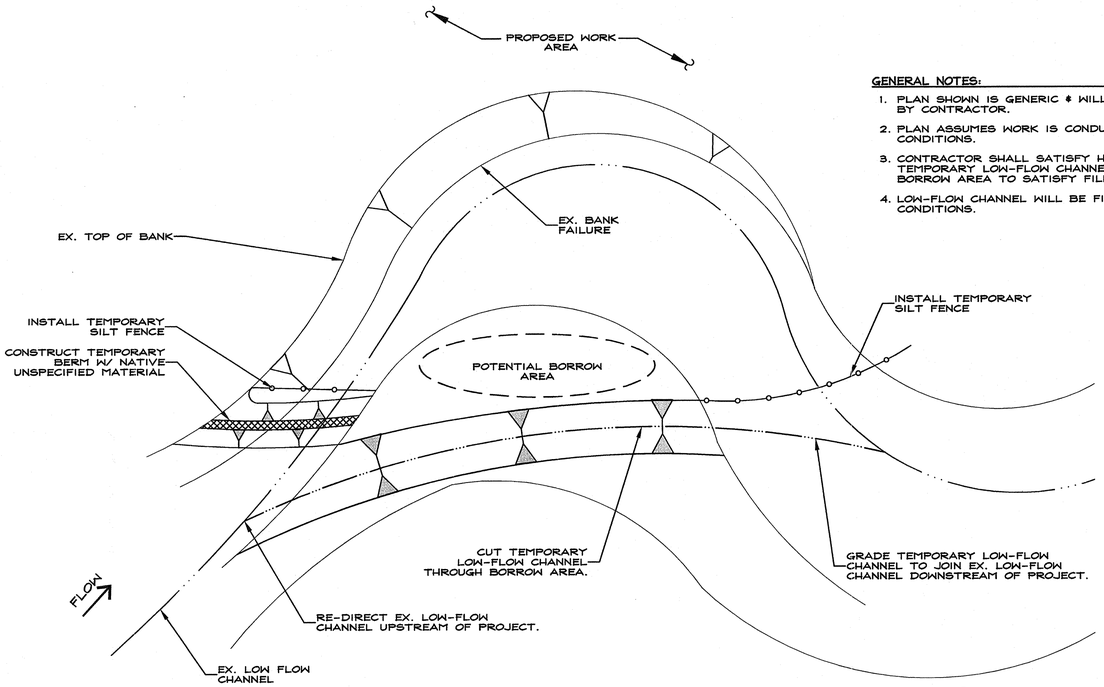
SITE PLAN

NAGASEKHAR R. GORLA
Exp: 6/30/19
CIVIL
No. 18557
STATE OF NEVADA
PROFESSIONAL ENGINEER
July 18, 2018

DRAWN: MCR	JOB: 1518-003
ENGINEER: NRG	DRAWING: SEE PLOT STAMP
SCALE: 1"=20'	SHEET: C3
DATE: 07/06/2018	OF: 5 SHEETS

IMPROVEMENT PLANS - 07/06/2018

Y:\Client Files\1518\1518-003\CAD\Engineering\Improvement Plans\1518-003-C3-REV.dwg 7/18/2018 2:40:52 PM Shaker Gorla



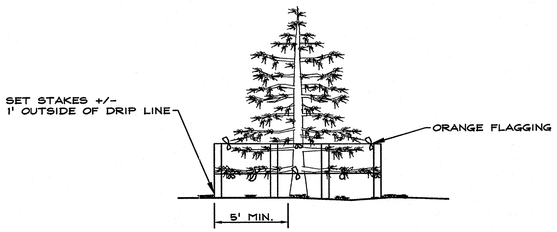
TYPICAL DEWATERING & EROSION CONTROL PLAN

1 / C4

NOT TO SCALE

GENERAL NOTES:

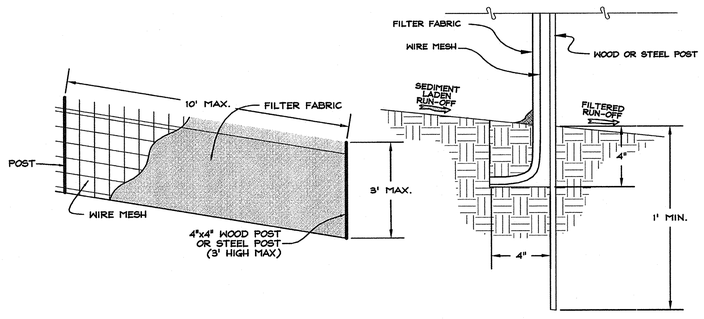
1. PLAN SHOWN IS GENERIC & WILL REQUIRE ADJUSTMENT IN FIELD BY CONTRACTOR.
2. PLAN ASSUMES WORK IS CONDUCTED AT EXTREMELY LOW FLOW CONDITIONS.
3. CONTRACTOR SHALL SATISFY HIMSELF THAT LOCATION WHERE TEMPORARY LOW-FLOW CHANNEL IS CUT WILL ALLOW ENOUGH BORROW AREA TO SATISFY FILL REQUIREMENTS OF PROJECT.
4. LOW-FLOW CHANNEL WILL BE FILLED & RESTORED TO EX. CONDITIONS.



TREE AND VEGETATION PROTECTIVE FENCING

3 / C4

NOT TO SCALE



GENERAL NOTES:

1. SOME TYPES OF FILTER FABRIC FENCE HAVE STAKES INCLUDED AND DO NOT REQUIRE THE MATERIALS LISTED.
2. THE FABRIC SHOULD NOT EXCEED MORE THAN 3' ABOVE THE GROUND. CUT FILTER FABRIC FROM A CONTINUOUS ROLL TO AVOID HAVING JOINTS. WHERE JOINTS ARE NECESSARY, SPLICE THE FABRIC ONLY AT A POST, WITH AT LEAST 6" OF OVERLAP, AND FASTEN BOTH ENDS SECURELY TO THE POST.
3. INSPECT PERIODICALLY AND AFTER EACH STORM. REPLACE DAMAGED FENCE.
4. CLEAN OUT THE SEDIMENT BEFORE IT REACHES 1/3 FENCE HEIGHT. DEPOSIT THE SEDIMENT WHERE IT WILL NOT ENTER A DRAINAGEWAY.

SILT FENCE INSTALLATION INSTRUCTIONS:

1. SPACE POSTS NO MORE THAN 10' APART AND DRIVE THEM AT LEAST 1' INTO THE GROUND. ALIGN THE FENCE ALONG THE SLOPE CONTOUR, CURVING IT SLIGHTLY UPHILL TO AVOID END RUNS.
2. DIG A 4"x4" TRENCH ALONG THE UPHILL SIDE OF THE POSTS.
3. FASTEN WIRE MESH TO UPHILL SIDE OF POST WITH STAPES (ON WOOD POSTS) OR WIRE (ON STEEL POSTS). EXTEND MESH TO BOTTOM OF TRENCH. (DO NOT ATTACH MESH OR FABRIC TO TREES).
4. FASTEN FILTER FABRIC TO UPHILL SIDE OF POSTS WITH STAPES OR WIRE. EXTEND FABRIC 8" INTO TRENCH.
5. BACKFILL TRENCH AND COMPACT THE SOIL.

MATERIALS:

1. SILT FENCE:
   a. FILTER FABRIC SHALL BE 42" WIDE, TENSILE STRENGTH 120 LBS., EQUIVALENT OPENING SIZE 70.
   b. POSTS SHALL BE 5' LONG (MIN.), 4"x4" WOOD OR 1.3 LBS./FT STEEL.
   c. WIRE MESH SHALL BE 42" WIDE, 6" MESH, 16 GAUGE WIRE (MINIMUM).
   d. STAPLES (FOR WOOD POSTS) SHALL BE HEAVY DUTY 1" LONG, 14 GAUGE (MINIMUM).
   e. WIRE (FOR STEEL POSTS).

SILT FENCE

2 / C4

NOT TO SCALE

SPILL PREVENTION AND RESPONSE

1. CONTRACTOR SHALL STEAM CLEAN ALL EQUIPMENT THAT WILL BE WORKING IN RIVER BED AT SHOP PRIOR TO COMMENCING CONSTRUCTION.
2. ALL EQUIPMENT SHALL BE CHECKED FOR LEAKS AND REPAIRED PRIOR TO COMMENCING CONSTRUCTION.
3. CONTRACTOR SHALL INSURE INTEGRITY OF SILT FENCE AND STRAW BALE BARRIERS DURING THE COURSE OF CONSTRUCTION.
4. CONTRACTOR SHALL USE DRIP PANS OR ABSORBENT MATS DURING FUELING AND MAINTENANCE TO PROTECT AGAINST SPILLS.
5. SPILLED PETROLEUM PRODUCTS, CONTAMINATED SOILS OR WATER, AND ACCUMULATED SEDIMENTS SHALL BE CLEANED UP AND PROPERLY DISPOSED OF AT A LICENSED LANDFILL. DISCHARGE OF SUCH MATERIALS TO THE RIVER CHANNEL OR DITCHES IS PROHIBITED.

REVEGETATION

1. ALL DISTURBED AREAS, CUT & FILL SLOPES SHALL BE RE-SEEDED. THE SEED MIX, APPLICATION RATE ETC. SHALL BE SPECIFIED BY THE MVCD.
2. REVEGETATED AREAS WILL BE INSPECTED AT COMPLETION OF INSTALLATION & ACCEPTANCE SUBJECT TO COMPLIANCE WITH SPECIFIED MATERIALS & INSTALLATION REQUIREMENTS. FOR ONE FULL GROWING SEASON AFTER PLANTING, CONTRACTOR SHALL GUARANTEE 30% COVERAGE BY SEEDED SPECIES & MULCH SUCH THAT THERE IS NO SIGNIFICANT EVIDENCE OF RILLS, GULLIES OR OTHER EVIDENCE OF EROSION. IF ADEQUATE COVERAGE IS NOT ACHIEVED, THE CONTRACTOR SHALL RE-SOIL AMEND, RE-SEED OR RE-MULCH. THE ENGINEER, UPON CONTRACTOR'S REQUEST, WILL MAKE FINAL INSPECTION & ACCEPTANCE ONE FULL YEAR FOLLOWING COMPLETION OF SEEDING(THE MAINTENANCE PERIOD). PROVIDE NOTIFICATION AT LEAST 10 WORKING DAYS BEFORE REQUESTED INSPECTION DATE.

GENERAL DEWATERING & TEMPORARY EROSION CONTROL PLAN NOTES

1. IN CASE OF EMERGENCY CALL MASON VALLEY CONSERVATION DISTRICT (ED RYAN, @ 775-223-7499 OR ENGINEER @ 775-782-2322).
2. CONTRACTOR MAY SUBMIT ALTERNATE DEWATERING & EROSION CONTROL PLAN TO ENGINEER. SUBMITTAL SHALL BE MADE IN ADVANCE OF CONSTRUCTION ACTIVITIES FOR REVIEW & APPROVAL.
3. CONSTRUCTION SHALL BE SCHEDULED TO COINCIDE WITH PERIODS OF LOW FLOW IN THE RIVER.
4. RESTORE AREAS DISTURBED BY DEWATERING ACTIVITIES TO PRE-CONSTRUCTION CONDITIONS.
5. ANY PASTURE FENCES DAMAGED, FAILING OR RELOCATED FOR CONSTRUCTION ACTIVITIES SHALL BE RESTORED TO EXISTING CONDITIONS AT TOP OF BANK.
6. DUST SHALL BE CONTROLLED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER AND OWNER.
7. THE CONTRACTOR SHALL MAINTAIN A CLEAN PROJECT SITE, REMOVING CONSTRUCTION DEBRIS AT THE END OF EACH ACTIVITY DAY. TRASH WILL BE HAULED TO A LICENSED DISPOSAL FACILITY. NO CONSTRUCTION WASTE MATERIALS SHALL BE BURIED ON SITE.
8. THE CONTRACTOR SHALL MAINTAIN DEBRIS FREE CONSTRUCTION ROUTES, ADJACENT STREETS AND STORM DRAIN SYSTEMS.
9. A STANDBY CREW FOR EMERGENCY WORK SHALL BE AVAILABLE AT ALL TIMES. NECESSARY MATERIALS SHALL BE AVAILABLE ON-SITE AND STOCKPILED AT APPROVED LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF TEMPORARY DEVICES OR TO REPAIR DAMAGED EROSION CONTROL MEASURES. CONTRACTOR SHALL PROVIDE OWNER WITH THE NAME & PHONE NUMBER OF EMERGENCY CONTACT AT THE PRE-CONSTRUCTION MEETING.
10. AFTER A RAINSTORM, ALL BMP'S AND GRADED SLOPE SURFACE PROTECTION MEASURES SHALL BE INSPECTED TO VERIFY CONTINUED SATISFACTORY OPERATION AND REPAIRED OR REPLACED IF NECESSARY.
11. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED IN GOOD WORKING ORDER. IF A REPAIR IS NECESSARY IT SHALL BE INITIATED WITHIN 24 HOURS OF REPORT.
12. FILL SLOPES AT THE PROJECT PERIMETER MUST DRAIN AWAY FROM THE TOP OF THE SLOPE AT THE CONCLUSION OF EACH WORKING DAY.
13. BUILT UP SEDIMENT SHALL BE REMOVED AS NECESSARY TO MAINTAIN PROPER FUNCTIONING OF THE BMP'S
14. ALL CONTROL MEASURES SHALL BE INSPECTED AT LEAST ONCE PER WEEK AND FOLLOWING ANY STORM EVENT OF 0.5 INCHES OR GREATER.
15. A MAINTENANCE INSPECTION REPORT WILL BE MADE AFTER EACH INSPECTION. THE REPORT WILL CONTAIN THE NAME OF THE INSPECTOR, MEASURES, AREAS INSPECTED, OBSERVED CONDITIONS, AND NOTE CHANGES NECESSARY.
16. REPORT RELEASES OF REPORTABLE QUANTITIES OF OIL OR HAZARDOUS MATERIALS (IF THEY OCCUR) TO NDEP AND THE OWNER WITHIN 24 HOURS.
17. FILTER FABRIC FENCES. IF THE FABRIC BECOMES CLOGGED, TORN, OR DEGRADES, IT SHOULD BE REPLACED. MAKE SURE THE STAKES ARE SECURELY DRIVEN IN THE GROUND AND ARE IN GOOD SHAPE (IE., NOT BENT, CRACKED, OR SPLINTERED, AND ARE REASONABLY PERPENDICULAR TO THE GROUND.) REPLACE DAMAGED STAKES.
18. SEDIMENT THAT ACCUMULATES IN THE BMP MUST BE PERIODICALLY REMOVED IN ORDER TO MAINTAIN BMP EFFECTIVENESS. SEDIMENT SHOULD BE REMOVED WHEN THE SEDIMENT ACCUMULATION REACHES ONE-THIRD OF THE BARRIER HEIGHT. SEDIMENT REMOVED DURING MAINTENANCE MAY BE INCORPORATED INTO EARTHWORK ON THE SITE OR DISPOSED AT AN APPROPRIATE LOCATION.
19. NO DEWATERING UNTIL FLOWS EXCEED 300 CFS AS READ AT THE HUDSON GAUGE.

NO.	DATE	REVISION BLOCK	BY

R|O|Anderson
WWW.ROANDERSON.COM
MINDEN
1603 Esmeralda Ave
P.O. Box 2229
Minden, NV 89423
p 775.782.2322
f 775.782.7084
RENO
140 W. Huffaker Lane
Suite 507
Reno, NV 89511
p 775.782.2322
f 775.782.7084

MITCHELL BANK STABILIZATION
WEST WALKER RIVER

DEWATERING AND TEMPORARY EROSION CONTROL

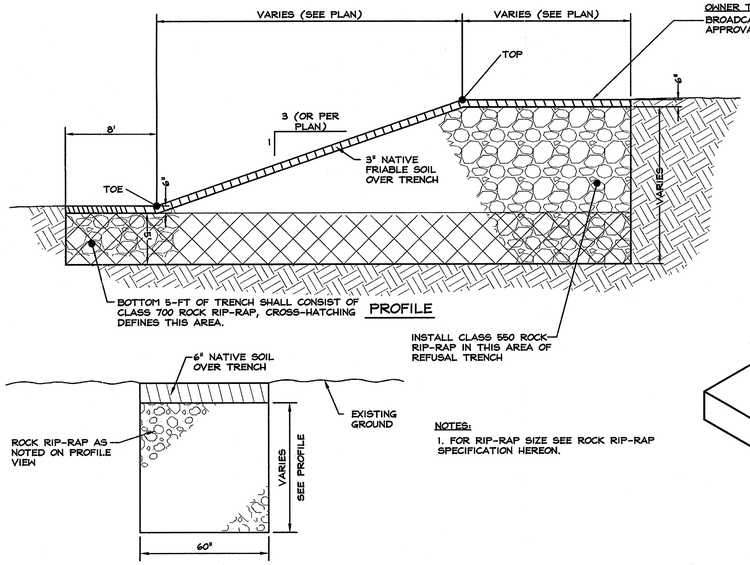
NAGASEKHAR R. GORLA — Exp: 6/30/19 — CIVIL — No. 18557 — STATE OF NEVADA — PROFESSIONAL ENGINEER

July 17, 2018

DRAWN: MCR	JOB: 1518-003
ENGINEER: NRG	DRAWING: SEE PLOT STAMP
SCALE: NTS	SHEET: C4
DATE: 07/06/2018	OF: 5 SHEETS

IMPROVEMENT PLANS - 07/06/2018

Y:\Client Files\1518\1518-003\CAD\Engineering\Improvement Plans\1518-003-C4.dwg 7/17/2018 1:15:48 PM Shaker Gorla



OWNER TO PROVIDE THE FOLLOWING

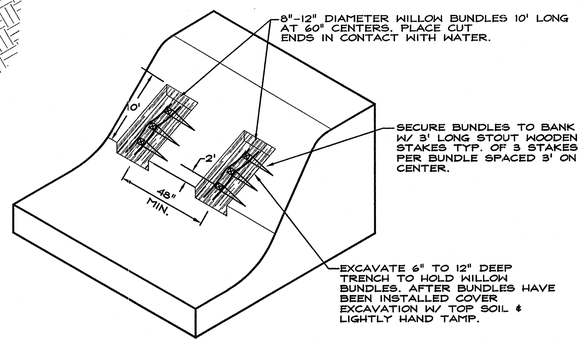
BROADCAST SEED WITH NATIVE SEED MIX. SUBMIT MIX TO ENGINEER FOR APPROVAL.

NOTES:

1. FOR RIP-RAP SIZE SEE ROCK RIP-RAP SPECIFICATION HEREON.

ROCK REFUSAL TRENCH 1/C5

NO SCALE

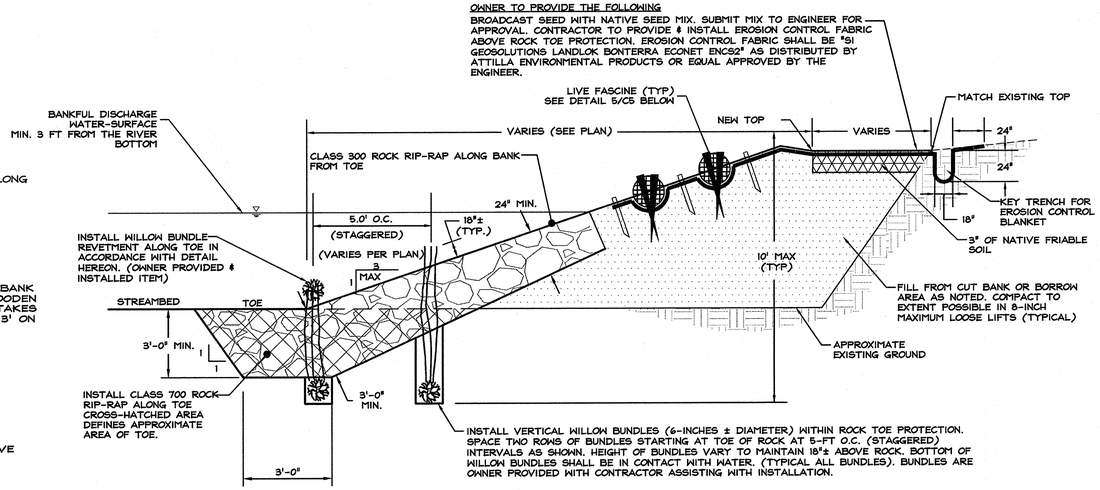


WILLOW BUNDLE REVETMENT 2/C5

NO SCALE

OWNER TO PROVIDE THE FOLLOWING

BROADCAST SEED WITH NATIVE SEED MIX. SUBMIT MIX TO ENGINEER FOR APPROVAL. CONTRACTOR TO PROVIDE & INSTALL EROSION CONTROL FABRIC ABOVE ROCK TOE PROTECTION. EROSION CONTROL FABRIC SHALL BE "SI GEOSOLUTIONS LANDLOK BONTERRA ECONET ENCS2" AS DISTRIBUTED BY ATTILLA ENVIRONMENTAL PRODUCTS OR EQUAL APPROVED BY THE ENGINEER.



ROCK TOE & SLOPE PROTECTION 3/C5

NO SCALE

TABLE 200.07.04-1

Percentage by Mass Passing Sieve	Sieve Size (inches)					
	Class 150	Class 300	Class 400	Class 550	Class 700	Class 900
100	10	20	30	40	48	60
70 - 85	9	18	27	36	45	54
30 - 50	6	12	18	24	30	36
5 - 15	2	5	7	12	18	24
0	1	2	3	6	8	12
D50(1)	6	12	16	22	28	35

1. MEAN STONE SIZE.

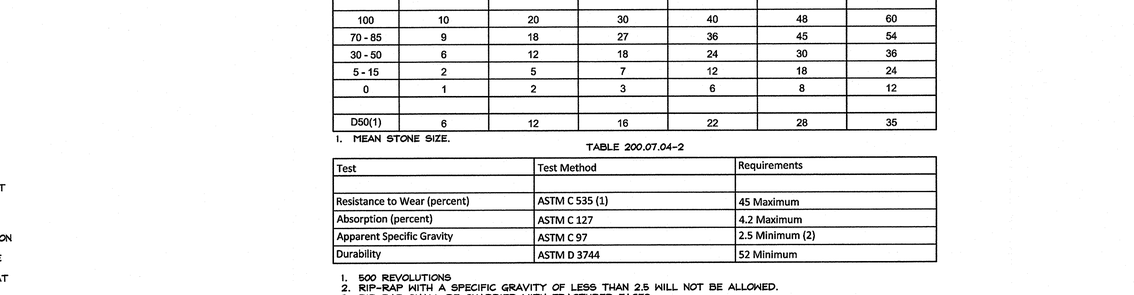
TABLE 200.07.04-2

Test	Test Method	Requirements
Resistance to Wear (percent)	ASTM C 535 (1)	45 Maximum
Absorption (percent)	ASTM C 127	4.2 Maximum
Apparent Specific Gravity	ASTM C 97	2.5 Minimum (2)
Durability	ASTM D 3744	52 Minimum

1. 500 REVOLUTIONS
2. RIP-RAP WITH A SPECIFIC GRAVITY OF LESS THAN 2.5 WILL NOT BE ALLOWED.
3. RIP-RAP SHALL BE QUARRIED WITH FRACTURED FACES.
4. RIP-RAP SHALL HAVE AN EARTH TONE WHICH BLENDS WITH SURROUNDING ENVIRONMENT.

ROCK RIP-RAP SPECIFICATIONS 6/C5

NO SCALE

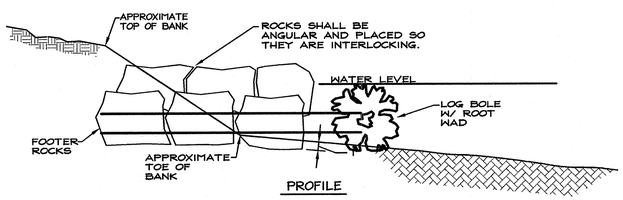


NOTES:

1. WILLOW CUTTINGS TO BE HARVEST FROM LOCAL SOURCE AS AVAILABLE.
2. CLEANLY DETACH WILLOW CUTTING MATERIAL 1' FROM EXISTING GROUND AT THE PLANT BASE. REMOVE SIDE AND TERMINAL BRANCHES. ASSURE NO BARK DAMAGE OCCURS TO REMAINING WILLOW BASE. PRESERVE AND PROTECT BASE IN PLACE.
3. SECURE WILLOW BUNDLE WITH 2 POLY TWINE PIECES PER BUNDLE.
4. PROTECT HARVEST SITE FROM PERMANENT DISTURBANCE. UPON COMPLETION OF HARVEST ACTIVITY, RESTORE SITE TO NATIVE CONDITIONS.
5. SOAK WILLOW CUTTINGS FOR 5-7 DAYS, BEFORE ROOTS BEGIN TO EMERGE FROM CUTTING.
6. ALTERNATE DIRECTION OF WILLOW BUNDLE TO PRODUCE AN EVEN WIDTH AT THE OVERLAP LOCATION.

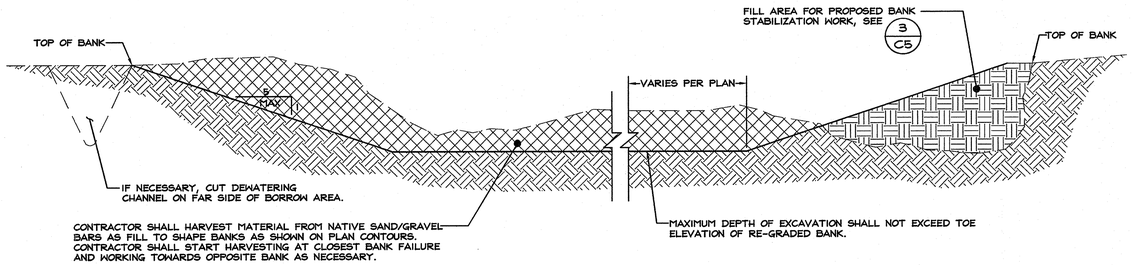
WILLOW WATTLES DETAIL 5/C5

NOTE:
ROCK USED SHALL BE ANGULAR WITH A MINIMUM SPECIFIC GRAVITY OF 2.56.



LOG VEIN DETAIL 4/C5

NO SCALE



TYPICAL BORROW SECTION 7/C5

NO SCALE

NO.	DATE	REVISION BLOCK	BY

R|O|Anderson
WWW.ROANDERSON.COM
MINDEN
1603 Esmeralda Ave
P.O. Box 2229
Minden, NV 89423
p 775.782.2322
f 775.782.7084
RENO
140 W. Huffaker Lane
Suite 507
Reno, NV 89511
p 775.782.2322
f 775.782.7084

MITCHELL BANK STABILIZATION
WEST WALKER RIVER

DETAILS

NAGASEKHAR R. GORLA — Exp: 6/30/19 — CIVIL — No. 18567 — STATE OF NEVADA — PROFESSIONAL ENGINEER

July 13, 2018

DRAWN: MCR	JOB: 1518-003
ENGINEER: NRG	DRAWING: SEE PLOT STAMP
SCALE: NTS	SHEET: C5
DATE: 01/10/2018	OF: 5 SHEETS

IMPROVEMENT PLANS - 07/06/2018

Y:\Client Files\1518\1518-003\CAD\Engineering\Improvement Plans\1518-003-C5-REV Aug 7/18/2018 2:34:15 PM Shaker Gerla