



 SEDIMENT & VEGETATION REMOVAL (280 FT (L) X 25 - 30 FT (W))
 SEDIMENT & VEGETATION REMOVAL (630 FT (L) X 25 - 30 FT (W))
 VEGETATION REMOVAL (490 FT (L) X 25 - 30 FT (W))

CHANNEL TYPE: 2/3 EARTHEN AND 1/3 CONCRETE
 CHANNEL SEGMENT DIMENSIONS: ~ 3,945 FT (L) X VARIES 25 to 40 FT (W)
 MAINTENANCE METHOD: SELECTIVE MAINTENANCE
 EQUIPMENT: DOZER, EXCAVATOR, FRONT LOADER, DUMP TRUCKS, PORTABLE PUMPS, VACTORS

SCOPE OF WORK:
 1. INSTALL TEMPORARY DAM UPSTREAM OF MAINTENANCE AREA.
 2. BYPASS WATER USING TWO 6 INCH PORTABLE PUMPS.
 3. DOZER ENTERS THE DRAIN FACILITY FROM EXISTING ACCESS RAMP.
 4. DOZER PUSHES CCUMULATED MATERIAL WITHIN DRAINAGE FACILITY TO A CENTRAL SITE NEAR ACCESS RAMP.
 5. LOADER ENTERS DRAIN FACILITY FROM EXISTING ACCESS RAMP.
 6. LOADER SCOOPS ACCUMULATED MATERIAL FROM CENTRAL SITE AND LOADS INTO DUMP TRUCK.
 7. LOADED DUMP TRUCK LEAVES DRAIN FACILITY AND TRANSPORTS MATERIAL TO AN APPROVED OFFSITE DISPOSAL LOCATION.

ACCESS: EXISTING PAVED ACCESS RAMP AND PARKING LOT
 STAGING AREA: NONE
 STOCKPILE AREA: NONE
 MAINTENANCE DURATION: ONE MONTH
 MANPOWER: 11 WORKERS

NOTE:
 1. HYDRAULIC ANALYSIS ASSUMED MAINTENANCE WOULD BE PERFORMED DOWNSTREAM OF CITY OF SD OWNERSHIP FOR AN ADDITIONAL 280 FT.
 2. MAINTENANCE INCLUDES 25 FT TO 30 FT SWATH FROM THE BOTTOM OF THE CHANNEL ONLY.

WATER QUALITY PROTOCOLS

- WQ-1 MINIMIZE NEW GROUND DISTURBANCE TO THE MAXIMUM EXTENT FEASIBLE, THROUGH EFFORTS SUCH AS LIMITING GRADING TO THE MINIMUM AREA REQUIRED, AND RESTRICTING VEHICLE ACCESS AND MANEUVERING TO DESIGNATED AREAS (WITH AN EMPHASIS ON USING EXISTING ROADS.)
- WQ-2 MINIMIZE MAINTENANCE OPERATIONS DURING THE RAINY SEASON (OCTOBER 1 TO APRIL 30).
- WQ-3 IMPLEMENT A "WEATHER TRIGGERED" ACTION PLAN FOR ACTIVITIES TO PROVIDE ENHANCED EROSION AND SEDIMENT CONTROL MEASURES PRIOR TO PREDICTED STORM EVENTS (I.E., 40 PERCENT OR GREATER CHANCE OF RAIN).
- WQ-6 INSTALL SEDIMENT CONTROLS WITHIN STORM WATER FACILITIES, ACCESS PATHS AND STAGING AREAS TO PREVENT OFF-SITE SEDIMENT TRANSPORT, INCLUDING MEASURES SUCH AS SILT FENCE, FIBER ROLLS, GRAVEL BAGS, TEMPORARY SEDIMENT BASINS, STABILIZED CONSTRUCTION ACCESS POINTS (E.G., SHAKER PLATES), CONTAINMENT BARRIERS (E.G., SILT FENCE, FIBER ROLLS AND/OR BERMS) FOR MATERIAL STOCKPILES, AND PROPERLY FITTED COVERS FOR MATERIAL TRANSPORT VEHICLES. REMOVE TEMPORARY EROSION CONTROL MEASURES UPON COMPLETION OF MAINTENANCE.
- WQ-7 IF BMP MATERIALS ARE STORED ON-SITE, PROVIDE ADEQUATE "STANDBY" CAPACITY TO PROVIDE COMPLETE PROTECTION OF EXPOSED AREAS AND PREVENT OFF-SITE SEDIMENT TRANSPORT.
- WQ-8 PROVIDE APPROPRIATE TRAINING FOR PERSONNEL RESPONSIBLE FOR BMP INSTALLATION AND MAINTENANCE.
- WQ-10 MONITOR EROSION CONTROL MEASURES DURING THE RAINY SEASON TO ENSURE THEIR EFFECTIVENESS.
- WQ-11 IMPLEMENT SAMPLING AND ANALYSIS, MONITORING AND REPORTING, AND POST-CONSTRUCTION MANAGEMENT PROGRAMS PER NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) AND/OR CITY REQUIREMENTS.
- WQ-12 CONTROL DUST BY INCLUDING MEASURES SUCH AS MATERIAL STOCKPILE AND TRANSPORT VEHICLE CONTROL, REGULAR WATERING OR USE OF SOIL BINDERS, AND RESTRICTION OF GRADING DURING HIGH WINDS.
- WQ-13 STORE ON-SITE HAZARDOUS MATERIALS AT LEAST 50 FEET FROM STORM DRAINS AND SURFACE WATERS.
- WQ-14 STORE CONSTRUCTION-RELATED TRASH IN AREAS AT LEAST 50 FEET FROM STORM DRAINS AND SURFACE WATERS, AND IMPLEMENT REGULAR (AT LEAST WEEKLY) REMOVAL OF TRASH BY A LICENSED OPERATOR FOR DISPOSAL AT AN APPROVED SITE.
- WQ-15 COVER AND/OR ENCLOSE STORAGE FACILITIES FOR HAZARDOUS MATERIALS AND TRASH, AND MAINTAIN ACCURATE AND UP-TO-DATE WRITTEN HAZARDOUS MATERIAL INVENTORIES.
- WQ-16 STORE HAZARDOUS MATERIALS OFF THE GROUND SURFACE (E.G., ON PALLETS) AND IN THEIR ORIGINAL CONTAINERS, WITH THE LEGIBILITY OF LABELS PROTECTED. REPLACE DAMAGED LABELS.
- WQ-17 AS APPROPRIATE, USE BERMS, DITCHES AND/OR IMPERVIOUS LINERS (OR OTHER APPLICABLE METHODS) IN MATERIAL STORAGE AND VEHICLE/EQUIPMENT MAINTENANCE AND FUELING AREAS TO PROVIDE A CONTAINMENT VOLUME OF 1.5 TIMES THE VOLUME OF STORED MATERIALS AND PREVENT DISCHARGE IN THE EVENT OF A SPILL.
- WQ-18 PLACE WARNING AND INFORMATION SIGNS IN AREAS OF HAZARDOUS MATERIAL USE OR STORAGE TO IDENTIFY THE TYPES OF MATERIALS PRESENT, AS WELL AS APPLICABLE USE RESTRICTIONS AND CONTAINMENT AND CLEAN-UP PROCEDURES.
- WQ-19 MARK STORM DRAINS (OR OTHER APPROPRIATE LOCATIONS) TO DISCOURAGE INAPPROPRIATE HAZARDOUS MATERIAL OR TRASH DISPOSAL.

- WQ-20 PROVIDE TRAINING FOR APPLICABLE EMPLOYEES IN THE PROPER USE, HANDLING AND DISPOSAL OF HAZARDOUS MATERIALS, AS WELL AS APPROPRIATE ACTION TO TAKE IN THE EVENT OF A SPILL.
- WQ-21 STORE READILY ACCESSIBLE ABSORBENT AND CLEAN-UP MATERIALS IN APPLICABLE LOCATIONS SUCH AS HAZARDOUS MATERIAL STORAGE AND VEHICLE AND EQUIPMENT MAINTENANCE AREAS.
- WQ-22 POST REGULATORY AGENCY TELEPHONE NUMBERS AND A SUMMARY GUIDE OF CLEAN-UP PROCEDURES IN A CONSPICUOUS LOCATION OR NEAR THE JOB SITE TRAILER.
- WQ-23 MONITOR AND MAINTAIN HAZARDOUS MATERIAL USE AND STORAGE FACILITIES AND OPERATIONS TO ENSURE PROPER WORKING ORDER ON AT LEAST A MONTHLY BASIS.

BIOLOGICAL RESOURCE PROTECTION PROTOCOLS

- BIO-27 RESTRICT VEHICLES TO APPROVED ACCESS RAMP AS SHOWN ON MAINTENANCE PLAN.
- BIO-28 THE SIZE AND NUMBER OF EQUIPMENT USED FOR MAINTENANCE SHALL BE SELECTED TO MINIMIZE DISTURBANCE ASSOCIATED WITH MAINTENANCE.
- BIO-29 FLAG ALL SENSITIVE BIOLOGICAL RESOURCE AREAS IN THE FIELD PRIOR TO COMMENCING MAINTENANCE ACTIVITIES. WHERE NECESSARY, A QUALIFIED BIOLOGIST SHALL BE PRESENT TO MONITOR THE WORK TO ENSURE IMPACTS TO THE RESOURCE ARE AVOIDED.
- BIO-30 AVOID INTRODUCTION OF SEED FROM INVASIVE SPECIES IN EROSION CONTROL MEASURES (E.G., FIBER MULCH, RICE STRAW, ETC.)
- BIO-31 AS NECESSARY, CONDUCT PRECONSTRUCTION SURVEYS TO DETERMINE THE PRESENCE OF ANY SENSITIVE ANIMAL SPECIES AND IMPLEMENT APPROPRIATE PROTECTION MEASURES (E.G. FENCING, FLAGGING, NOISE BARRIERS, SIGNAGE) DURING MAINTENANCE. THE BIOLOGICAL MONITOR SHALL BE PRESENT THROUGHOUT THE FIRST FULL DAY OF MAINTENANCE AND SHALL VISIT THE SITE WEEKLY THROUGH THE DURATION OF MAINTENANCE ACTIVITIES TO CONFIRM THAT MEASURES REQUIRED TO PROTECT SENSITIVE RESOURCES CONTINUE TO BE EFFECTIVE.
- BIO-32 MAINTENANCE ACTIVITIES THAT INVOLVE REMOVAL OF ARUNDO DONAX (ARUNDO) SHALL OCCUR THROUGH ONE, OR A COMBINATION, OF THE FOLLOWING METHODS: (1) FOLIAR SPRAY (SPRAYING HERBICIDE ON LEAVES AND STEMS WITHOUT CUTTING FIRST) WHEN ARUNDO OCCURS IN MONOTYPIC STANDS, OR (2) CUT AND PAINT (CUTTING STEMS CLOSE TO THE GROUND AND SPRAYING OR PAINTING HERBICIDE ON CUT STEM SURFACE) WHEN ARUNDO IS INTERMIXED WITH NATIVE PLANTS. WHEN SEDIMENT SUPPORTING ARUNDO MUST BE REMOVED, THE SEDIMENT SHALL BE EXCAVATED TO A DEPTH SUFFICIENT TO REMOVE THE RHIZOMES, WHEREVER FEASIBLE. FOLLOWING REMOVAL OF SEDIMENT CONTAINING RHIZOMES, LOOSE RHIZOME MATERIAL SHALL BE REMOVED FROM THE CHANNEL AND DISPOSED OFFSITE. AFTER THE INITIAL TREATMENT, THE AREA OF REMOVAL SHALL BE INSPECTED ON A QUARTERLY BASIS FOR UP TO TWO YEARS, OR UNTIL NO RESPROUTING IS OBSERVED DURING AN INSPECTION. IF RESPROUTING IS OBSERVED, THE CUT AND PAINT METHOD SHALL BE APPLIED TO ALL RESPROUTS.
- BIO-33 IDENTIFY ACTIVE RAPTOR NESTS PRIOR TO COMMENCING MAINTENANCE ACTIVITIES AND MAINTAIN A 300 FOOT SETBACK FROM ACTIVE NESTS.

WASTE MANAGEMENT PROTOCOLS

- WM-35 DISPOSE COMPOSTABLE GREEN WASTE MATERIAL SHALL BE TAKEN TO AN APPROVED COMPOSTING FACILITY, IF AVAILABLE.
- WM-36 SCREEN SOIL, SAND AND SILT SHALL BE SCREENED TO REMOVE WASTE DEBRIS AND, WHEREVER POSSIBLE, RE-USED AS FILL MATERIAL, AGGREGATE OR OTHER RAW MATERIAL.
- WM-37 SEPARATE AND TRANSPORT WASTE TIRES TO AN APPROPRIATE DISPOSAL FACILITY. IF MORE THAN NINE (9) TIRES ARE IN A VEHICLE OR WASTE BIN AT ANY ONE TIME, THEY SHALL BE TRANSPORTED UNDER A COMPLETED COMPREHENSIVE TRIP LOG (CTL) TO DOCUMENT THAT THE TIRES WERE TAKEN TO AN APPROPRIATE DISPOSAL FACILITY.
- WM-38 FOR HAZARDOUS MATERIALS ENCOUNTERED DURING MAINTENANCE (INCLUDING MACHINE OIL, MERCURY SWITCHES, AND REFRIGERANT GASES FOUND IN APPLIANCES); COMPLETE A HAZARDOUS MATERIALS MANIFEST AND TRANSPORT AND DISPOSE AT AN APPROVED HAZARDOUS WASTE STORAGE, RECYCLING, TREATMENT OR DISPOSAL FACILITY. PERSONNEL HANDLING HAZARDOUS MATERIALS SHALL HAVE APPROPRIATE TRAINING.

PRE-MAINTENANCE MEETING

PRIOR TO COMMENCING MAINTENANCE ACTIVITIES, AN ON-SITE PRE-MAINTENANCE MEETING SHALL BE CONDUCTED AND INCLUDE SWD MAINTENANCE MANAGER (MM), MAINTENANCE CONTRACTOR (MC), AND MONITORING BIOLOGIST. AT A MINIMUM, THE FOLLOWING SHALL BE DISCUSSED: REVIEW OF MAINTENANCE PROTOCOL IDENTIFIED IN IMP; PROPER USE, HANDLING AND DISPOSAL OF HAZARDOUS MATERIALS; MEASURE REQUIRED TO PROTECTIVE SENSITIVE RESOURCES; SITE/ GRADING PLAN; CONSTRUCTION SCHEDULE (INCLUDING WHEN AND WHERE MONITORING IS TO BEGIN.)

NOTE

NO TRASH, OIL, PARKING OR OTHER MAINTENANCE-RELATED ACTIVITIES SHALL BE ALLOWED OUTSIDE THE ESTABLISHED MAINTENANCE AREAS INCLUDING STAGING AREAS AND/OR STORAGE AREAS, AS SHOWN ON THE APPROVED MAINTENANCE PLAN. ALL MAINTENANCE RELATED DEBRIS SHALL BE REMOVED OFF-SITE TO AN APPROVED DISPOSAL FACILITY.