

# B.M.P. IMPLEMENTATION DURING CLEARING AND WELL PAD/ACCESS ROAD DEVELOPMENT

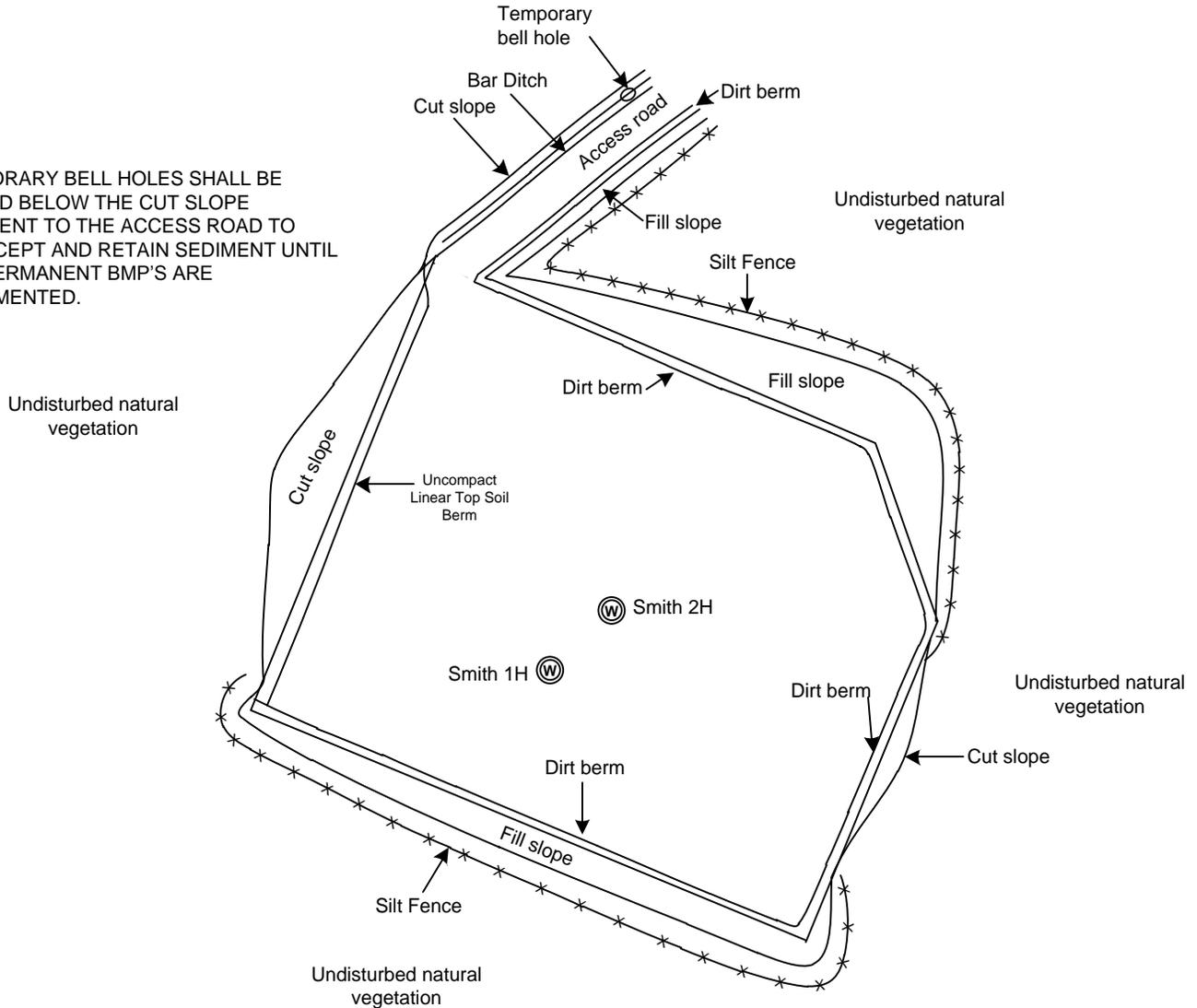


UNDISTURBED NATURAL VEGETATION SHALL BE PRESERVED OUTSIDE OF THE BOUNDARY OF DISTURBANCE, REDUCING SEDIMENT AND EROSION PROBLEMS.

DURING THE CLEARING OPERATION ALL VEGETATION 6 INCHES IN DIAMETER OR LARGER WILL BE DE LIMBED AND SOLD TO THE PUBLIC; IF THE VEGETATION IS LESS THAN 6 INCHES IN DIAMETER, IT WILL BE CHIPPED AND USED AS MULCH ON-SITE. SILT FENCE WILL BE PLACED DOWN GRADIENT OF THE DISTURBED AREAS TO INTERCEPT AND RETAIN SEDIMENT UNTIL SUFFICIENT VEGETATION GROWTH HAS OCCURRED OF THE CUT AND FILL SLOPES OF THE ACCESS ROAD AND WELL PAD.

DURING THE ACCESS ROAD DEVELOPMENT SOIL SHALL BE SEPARATED FROM SOLID ROCK. SOME OF THE ROCK WILL BE STORED FOR STABILIZATION PURPOSES AS NEEDED. THE SOIL WILL BE USED TO CREATE A TEMPORARY DIRT BERM UP GRADIENT OF THE FILL SLOPE TO PREVENT EROSION OF THE FILL SLOPE OF THE ACCESS ROAD.

TEMPORARY BELL HOLES SHALL BE PLACED BELOW THE CUT SLOPE ADJACENT TO THE ACCESS ROAD TO INTERCEPT AND RETAIN SEDIMENT UNTIL THE PERMANENT BMP'S ARE IMPLEMENTED.



ONCE THE WELL PAD FILL SLOPES HAVE BEEN CONSTRUCTED, A PERMANENT UNCOMPACT LINEAR DIRT BERM NO TALLER THAN THREE FEET SHALL BE UTILIZED UP GRADIENT USING TOP SOIL AND SOIL STOCK (PER S.U.I.T REQUEST AT ON-SITE) TO PREVENT EROSION OF THE FILL SLOPE AND DIRECT RUN OFF TO A DESIRED LOCATION. A PERMANENT COMPACTED DIRT BERM WILL BE UTILIZED UP GRADIENT OF THE FILL SLOPES AND SOUTH EAST CUT SLOPE TO PREVENT EROSION OF THE FILL SLOPE AND DIRECT RUN OFF TO A DESIRED LOCATION.

# B.M.P. IMPLEMENTATION DURING UTILITY INSTALLATION. BEGIN FINAL GRADE/STABILIZATION



PORTABLE TOILETS SHALL BE SECURED TO TRAILERS/GROUND AND PLACED AWAY FROM DRAINAGE AREAS, TRAFFIC FLOW AND FILL SLOPES.

BEAR PROOF TRASH CONTAINERS SHALL BE PROVIDED DURING THE DRILLING AND COMPLETION OPERATION ONLY. THEY WILL BE PLACED AWAY FROM DRAINAGE AREAS, TRAFFIC FLOW AND FILL SLOPES.

ONCE THE WELL PAD CUT AND FILL SLOPES HAVE ACHIEVED FINAL GRADE, SEEDING WITH A MULCH TACKIFIER WILL BE UTILIZED WHICH WILL OCCUR AFTER ACCESS ROAD FINAL GRADE. TO ADHERE THE SEED TO THE SOIL AND PROMOTE THE ESTABLISHMENT OF VEGETATION.

DIRECTION OF FLOW (D.O.F.)

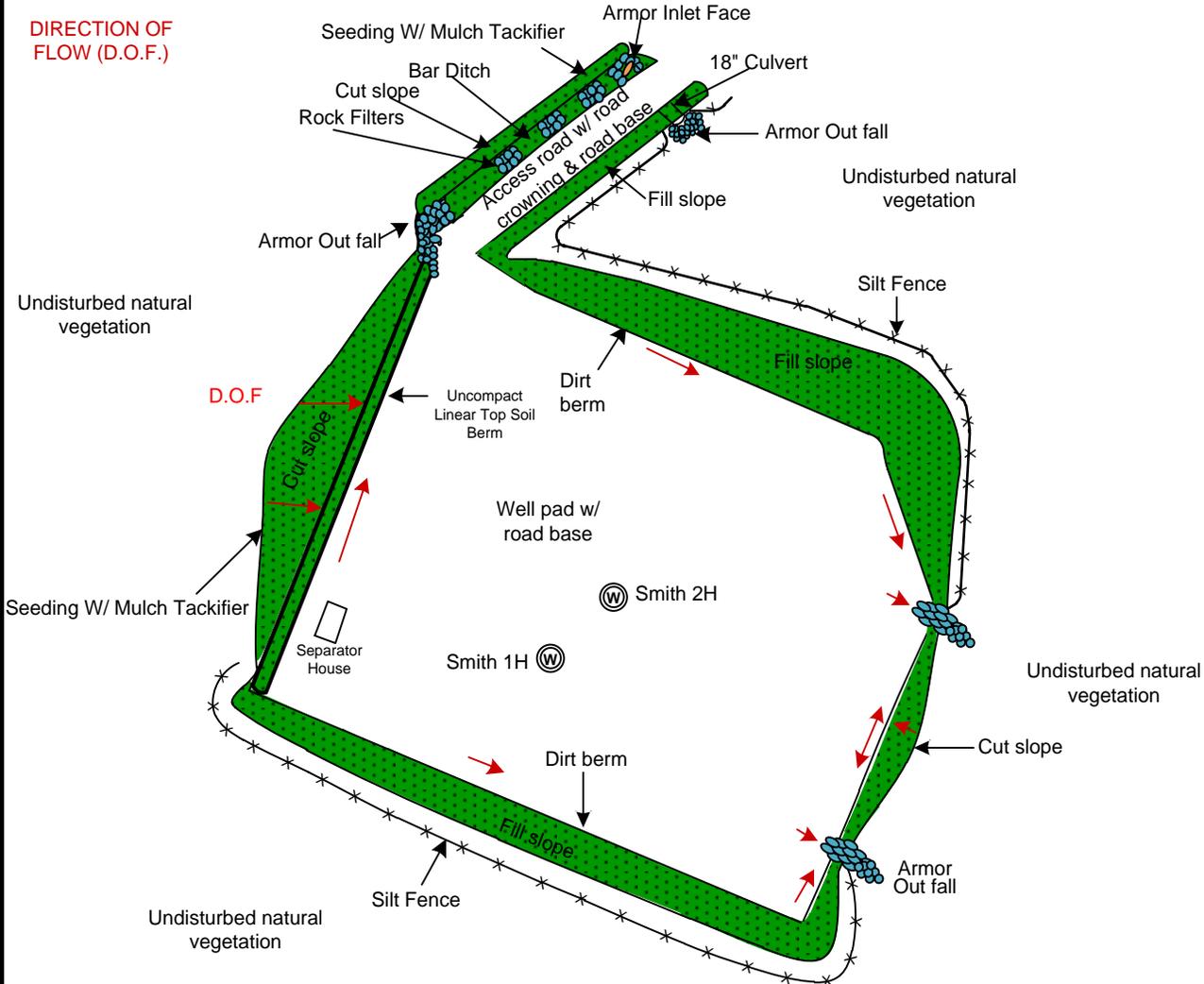


# B.M.P. IMPLEMENTATION DURING FINAL STABILIZATION



PIPELINE WILL BE LEFT EXPOSED IN LOCATIONS MARKED FOR CULVERT INSTALL BY XTO PERSONNEL. AFTER THE PIPELINE HAS BEEN INSTALLED, PADDED AND BACK FILLED, FINAL GRADE AND STABILIZATION WILL BEGIN ALONG THE ACCESS ROAD. WHERE POSSIBLE CUT AND FILL SLOPES SHALL BE SLOPED TO A MINIMUM OF 2.5:1 GRADE. ACCESS ROADS WILL BE LIMITED TO (20) FEET WIDE EXCEPT ON TURNS, CURVES, OR TERRAIN WHERE ENGINEERING REQUIREMENTS REQUIRE SOMETHING GREATER. DEPENDING ON SOIL CONTENT GRADING TECHNIQUES MAY BE UTILIZED TO PREPARE THE CUT SLOPE FOR SEEDING. THE ACCESS ROAD SURFACE WILL BE CROWNED.

A BAR DITCH WILL BE ESTABLISHED AT THE TOE OF THE CUT SLOPE TO DIRECT RUN OFF TO A DESIRED LOCATION WHERE 18' CULVERTS WILL BE INSTALLED. CULVERT INLETS WILL UTILIZE RIP RAP ON THE FACE TO STABILIZE THE INLET. CULVERT OUTLETS WILL UTILIZE ARMOR TO DISSIPATE ENERGY, TRAP SEDIMENT AND PREVENT SCOURING OF THE FILL SLOPE. ROCK FILTERS WILL BE UTILIZED IN THE BAR DITCH TO DISSIPATE ENERGY, TRAP SEDIMENT AND PREVENT SCOURING OF THE BAR DITCH.



A DIRT BERM SHALL BE UTILIZED ON THE WELL PAD PERIMETER TO DIRECT RUN OFF TO A DESIRED LOCATION. THESE LOCATIONS WILL BE ARMORED TO DISSIPATE ENERGY, TRAP SEDIMENT AND PREVENT EROSION AS RUN OFF EXITS THE SITE.

ALL 18' CULVERTS WILL BE INSTALLED WITH A MINIMUM COVER OF (1) FOOT WITH PADDING MATERIAL. AFTER THE CULVERTS HAVE BEEN INSTALLED, ROAD BASE WILL BE UTILIZED ON THE ACCESS ROAD AT A WIDTH OF (14) FEET WIDE AT (4) INCHES THICK AFTER COMPACTION. IN AREAS WHERE THE ROAD IS WIDER THAN (20) FEET GRAVEL WILL BE PLACED TO MATCH THE TRAFFIC PATTERN TO STABILIZE THE ROAD SURFACE AND REDUCE OFF SITE VEHICLE TRACKING. THE WELL PAD WILL UTILIZE ROAD BASE INSIDE THE DEAD MAN ANCHORS MATCHING THE ABOVE CRITERIA.

AFTER THE SURFACE EQUIPMENT HAS BEEN INSTALLED, PRIOR TO PRODUCTION, GRAVEL WILL BE USED AROUND THE SURFACE EQUIPMENT FOR PERMANENT STABILIZATION.

THE CUT AND FILL SLOPES OF THE ACCESS ROAD SHALL BE SEEDING WITH A MULCH TACKIFIER TO STABILIZE THE DISTURBANCE, ADHERE SEED TO THE SOIL AND PROMOTE THE ESTABLISHMENT OF VEGETATION.

