Project Details Definitions

This document is intended to be used in concert with the Project Details Document. The intent of this document is to assist in the evaluation process for each item listed in the Project Details Document.

The definitions were developed to give the project reviewer a better understanding of the activity and its potential effect on environmental and social impacts.

Related Activities: Related Activities are those that are often done in conjunction with the listed construction activity, but are not always associated with the listed activity and should not automatically be checked. The intent of the Related Activities is to help the Project Development Analyst or Roadway Designer to think about all the activities that may be associated with the project.

Grading Outside the Hinge Point

Grading Outside the Hinge Point is defined as**:** Soil disturbance that takes place outside the existing hinge point of the shoulder i.e. the foreslope and backslope. Hinge point is defined as the shoulder point, where the earth shoulder meets the foreslope, whenever the foreslope is steeper than 6:1. Whenever the safety section grading is 6:1 or flatter, the hinge point is where the safety section grading meets the foreslope. This distance is not to exceed 30 feet from the outside edge of the through driving lane. This is normally associated with projects that include roadway widening, slope shaping, slope stabilization, excavation, work on structures, drainage issues and realignments. This is performed using some type of heavy equipment and will involve soil disturbance.

Flume Repair/Replacement on Existing Curb & Flume- A flume is an artificial water channel or drop-pipe that carries water off the roadway and into the ditch. This activity may occur when the existing curb shall be used in place, but the flume requires work, extension, or replacement. May include headwall removal, replacement with flared end sections. This activity is performed using heavy equipment and may include soil disturbance outside the hinge point. Related Activities: Grading Outside the Hinge Point, Erosion Control

New Curb and Flume- A curb is a raised edge of asphalt built along the road to carry water along the side of the road to a flume which is an artificial water channel that carries water off the roadway and onto the shoulder. This activity is performed using heavy equipment and may include soil disturbance outside the hinge point. Related Activities: Grading Outside the Hinge Point, Paving, Erosion Control

New Curb and Gutter- Curb and gutter areas are constructed in urban areas where storm drains exist (urban areas). This activity is performed using heavy equipment and may include soil disturbance outside the hinge point. This could include ADA ramp installation or upgrades. Related Activities: Paving, Erosion Control

Replacing a Bridge with a Culvert- The act of replacing an existing bridge with a culvert. This activity will involve the use of heavy equipment and soil disturbance. Related Activities: Grading Outside the Hinge Point, Erosion Control, Removal of Old Substructure, Bank Stabilization

Channelization- The manipulation of a streams course, condition, length, capacity or location. Related Activities: Grading Outside the Hinge Point, Culvert Replacement, Repair, Bank Stabilization, Temporary Work Platform

Bank Stabilization- Methods of securing the structural integrity of earthen stream channel banks with structural supports to prevent bank slumping and undercutting and overall erosion prevention. Bank stabilization helps maintain existing or newly constructed earthen banks by using techniques including but not limited to articulated block, riprap, gabions, or brush bundles to keep material in place. This is performed using some type of heavy equipment and may involve surface soil disturbance. Any upland bank/bluff or back slope stabilization work would be considered grading outside the hinge point. Related Activities: Grading Outside the Hinge Point, Erosion Control, Bridge Substructure Repair, Culvert Replacement, Extension, Repair

Storm Sewer Work- Storm sewer is a network of inlets and pipes designed to drain excess water from the roadway. Found in curbed sections, typically urban; inlets are located within or near the curb, the pipes are located below the roadway. Work includes installation, relocation, or replacement of pipes or inlets. Related Activities: Grading Outside the Hinge Point, Erosion Control, Culvert Replacement, Extension, Repair, Curb and Gutter

Sanitary Sewer Work- Sanitary sewer is a network of pipes designed to carry sewage from buildings to treatment facilities. Found in urban areas under and around roadways installed at a depth below the local frost-line (greater than 5 feet in Nebraska). This work typically occurs on NDOT projects when a local municipality performs their storm sewer project in concert with an existing roadway project. This may involve the use of heavy equipment for excavations. Related Activities: None identified.

Localized Modification of Highway or Side Road Alignment- Includes possible modifications of horizontal and/or vertical alignments at specific points along the project. Examples may include modifications to accommodate bridge/culvert replacement phasing, flattening of single crest curves, relocation of county road intersections, changing vertical alignment of side roads or drives due to accommodate a grade raise on mainline for a bridge. This may involve the use of heavy equipment for grading. Related Activities: Grading Outside the Hinge Point, Erosion Control, Culvert Replacement, New Paving, Drives and Intersections: New or Widening

Additional Paving Items- These may include new or modification of intersections, drives, and turn lanes, shoulder widening, adding driving lanes, superelevation correction, mailbox turnouts, and other paving modifications. Procedure of installing additional paving items may occur during the construction of new roadways or existing roadways where design standards require it either within or outside the hinge-point. This procedure is performed using some type of heavy equipment and will involve soil disturbance where material is hauled, compacted, bladed, and shaped to conform to the plan's typical cross sections and compaction requirements. Related Activities: Grading Outside the Hinge Point, Erosion Control, Modification of Roadway Alignment

Grading and Surfacing for Guardrail- Placement of surfacing, fill, and grading to accommodate repairs or replacement of all types of guardrail, steel beams, steel band or cable, end-treatments including the supporting posts to restore safe driving conditions. Associated work may include placement of new posts. May occur beyond the hinge-point. Related Activities: Grading Outside the Hinge Point, Erosion Control

Lighting, Signals, Small ITS Elements w/ soil disturbance- A term referring to work that provides roadway illumination, traffic signals, cameras, weather stations, variable speed advisory signs, and automated gates. The scope may include trenching or boring in electrical service, constructing concrete foundations for light poles, and above ground utility relocation/extension. Related Activities: Grading Outside the Hinge Point, Erosion Control, Underground Utility Conduit Installation/Relocation

Underground Utility Conduit Installation/Relocation: Conduit installation that includes excavating, backfilling and compacting soil or installation by horizontal boring equipment. Urban storm sewer replacement, relocation, extension, or repair would be included in this activity. Related Activities: Grading Outside the Hinge Point, Grading Within the Hinge Point, Erosion Control, Signs with soil disturbance, Lighting, Traffic and Pedestrian Signals, Dynamic Message Signs w/ soil disturbance

Small Signs with soil disturbance- The placement or maintenance of sign posts along with the new signage that requires the excavation of soil for installation of footings or mechanically driven sign bases for their installation. Related Activities: Erosion Control, Grading Outside the Hinge Point

Large Overhead Truss Signs or Message Boards- Replacement or installation of overhead structures meant for signs or message boards. Installation and removal of existing structures will require short duration road closures to complete the work. Structures also require drilled shaft foundations. Related Activities: Grading Outside the Hinge Point, Erosion Control, Underground Conduit, Drilled Shafts

Drilled Shaft Foundations- A Drilled Shaft is a deep foundation that is constructed by placing fluid concrete in a drilled hole (in channels or upland areas). Typically, they are used for bridges and large structures, where large loads and lateral resistance are major factors. Drill cuttings generally must be discharged per conservation condition. Related Activities: Barge Staging, Dewatering, Cofferdams, Bridge Substructure New and Replacement, Overpass

Fencing/Gates- Building a barrier or boundary to prevent or direct movement from one area to another. Fencing operations may include clearing vegetation from the fenceline and material removal for installation of fence posts. It also includes the erection of wire and posts or other material and may include soil disturbance. Related Activities: Grading Outside the Hinge Point, Clearing and Grubbing, Erosion Control.

Landscaping - Aesthetic- A term referring to any activity that modifies or enhances the visible features of the project site by shaping the terrain and planting a variety of grasses, trees, or shrubs. This activity may include the use of heavy equipment and will involve soil disturbance. Related Activities: Erosion Control

ADA/Curb Ramps, Sidewalks, and Bikeways- Grading and surfacing of sidewalks, bikeways, or non-motorized trails. This could include ADA ramp installation or upgrades. This could include right-of-way activities Related Activities: Grading Outside the Hinge Point, Curb and Gutter, Culverts, Bridges

Culvert Work: New, Replacement, Extension, Repair- Installation or repair of any structure, not classified as a bridge, which provides an opening under the roadway for water to flow. This activity may be performed by heavy equipment and may include soil disturbance outside the hinge point. May include headwall removal, replacement with flared end sections, and rural storm sewer work. Related Activities: Erosion Control

- Culvert New-This activity is the installation of a culvert in a location where there was none previously. The activity requires excavation of material, placement of culvert pipe, backfilling around the new culvert, and finish grading. For box culverts, forms are set and concrete is poured to form the culvert.
- Culvert Replacement- This activity is the installation of a new culvert of the same or different type and size in place of an existing culvert. The activity requires the excavation of material covering the existing culvert and backfilling around the new culvert.
- Culvert Extension- This is an activity where a culvert is lengthened because of an increase in roadway width. For metal culverts, a piece of culvert is attached, often requiring either a concrete collar or metal band for the joint, to the existing culvert and the area around the culvert is backfilled and finish graded. For box culverts, forms are set and new concrete is poured that extends the culvert to the plan specifications.
- Culvert Repair- This includes but is not limited to sliplining, wingwalls, and box culvert floor repair.

Temporary Crossing for Non-Bridge Sized Culvert Work or Bridge Work, Causeway, Work Platforms-

- Temporary Crossing- A temporary crossing consists of a culvert(s) or temporary bridge for full crossing of the stream channel from bank to bank. Culverts are covered by earthen fill, clean granular fill or rock for the purpose of providing a temporary crossing for workers, equipment, and efficiency of phasing. The sides of the crossing may be armored with rock rip-rap, sheetpile, or other equivalent. The culverts used in the temporary crossing will allow for normal Ordinary High Water Mark (OHWM) stream flows with minimal backwater and shall not be placed to dewater the downstream channel area within the OHWM. These are removed at the completion of construction.
- Causeway- A causeway is considered a construction activity using fill and culverts or temporary bridges for partial waterway crossing, not exceeding 50% of normal/ordinary high-water channel width. These are removed at the completion of construction.
- Work Platform- A work platform is a structure used to conduct activities in or adjacent to a stream channel and may include a temporary bridge, causeway, bank platform, and/or work pads. These are removed at the completion of construction.
- Related Activities (Temporary Crossing for Bridge Work): Grading Outside the Hinge Point, Cofferdams, Piers, Pile Driving-Vibratory and Impact, Erosion Control, Pile/Pier Encasement, Drilled Shafts, Removal of old substructure, Channelization, Bank Stabilization, Culvert Replacement, Bridge Substructure New and Replacement, Overpass

Grading or Flattening Foreslopes or Backslopes- Grading work meant to make foreslopes or backslopes less steep. This may involve the use of heavy equipment for grading. Related Activities: Grading Outside the Hinge Point, Erosion Control, Culvert Extensions

Bridge Locations

Barge Staging- Movement and anchoring of barges into the channel bottom, channel banks, and connecting to other barges. This may also include activities such as launching, docking, and loading. Related Activities: Bridge Superstructure/Substructure New and Replacement

Bridge Deck Repair- Repairing decks, expansion joints, patching spalled areas, overlaying and repairing with other material as appropriate to restore the deck from the roadway. Related activities may include

but is not limited to timber plank replacement, milling and resurfacing the roadway, as well as silica fume overlays that do not penetrate the full depth of the deck. This may involve the use of heavy equipment on the bridge deck or roadway as well as methods to capture construction debris from falling into the channel. These activities may include false-work, hand tools, or motorized equipment to removed debris. Related Activities: None identified.

Bridge Deck Replacement- Replacement of the entire deck. This may involve the use of heavy equipment as well as methods to capture construction debris from falling into the channel. These activities may include false-work, hand tools, or motorized equipment to removed debris. Related Activities: Bridge Superstructure New and Replacement, Night-time work with lights

Bridge Rail Repair/Replacement- The process of fixing or updating the railing on a bridge. This may include a transition from steel rails to concrete on the existing railing on the bridge or remodeling buttresses. Related Activities: None identified.

Bridge Substructure New, Replacement, or Repair - Replacement or construction, remodel, or repair of portions of a bridge below the superstructure including all or part of the following foundation elements: abutments, columns, wall piers, footings, pile caps, precast or auger-cast concrete piles, drilled shafts, etc. Related Events: Cofferdams, Pile Driving Vibratory, Pile Driving Impact, Temporary Work Platform, Bridge Superstructure New & Replacement, Dewatering, Bank Stabilization, Drilled Shafts, Grading and Surfacing for Guardrail, Lighting, Traffic and Pedestrian Signals, ITS Elements, Grading Outside the Hinge Point, Nighttime work with lights, New Paving, Pile/Pier Encasement, Removal of old Substructure,

Cleaning/Painting- Sandblasting, cleaning, priming and painting of structure elements to prevent deterioration. Any lead based paints are stripped and collected for proper disposal. Related Activities: None indentified.
Barge Staging

Bridge Superstructure New, Replacement, or Repair- Replacement or construction, remodel, or repair of the structure above the substructure. The superstructure includes but is not limited to the deck and roadway for carrying traffic over a channel that holds water. This may include silica fume overlays which penetrates the entire thickness of the bridge deck. Related Activities: Paving, Bridge Substructure New, Replacement, or Repair, Temporary Work Platform, Guardrail Repair Lighting, Traffic and Pedestrian Signals, Dynamic Message Signs, Nighttime work with lights, Barge Staging

Cofferdams— A temporary generally watertight enclosure that is pumped dry to expose the bottom of a body of water so that construction, as of piers, may be undertaken. This activity is performed using heavy equipment and will involve surface soil disturbance. Related Activities: Pile Driving Impact, Pile Driving Vibratory, Piers, Dewatering, Drilled Shafts, Bridge Substructure New, Replacement, and Repair, Pile/Pier Encasement, Stream Channel Impact, Temporary Work Platforms, Barge Staging

Pile Driving, Impact Method- Delivering repeated blows to the top of a pile for driving it into the ground. This method often uses a diesel pile hammer attached to heavy equipment to impact the pile. Related Activities: Cofferdams, Channel Grade Stabilization Structures, Temporary Work Platforms

Pile Driving, Vibratory Method- A machine is lifted and positioned over the pile by means of an excavator or crane, and is fastened to the pile by a clamp and/or bolts. Vibratory hammers can either drive in or extract a pile; extraction is commonly used to recover steel "H" piles used in temporary

foundation shoring. Related Activities: Cofferdams, Channel Grade Stabilization Structures, Temporary Work Platforms

Pile/Pier Encasement/Preservation- This process includes excavating around an exposed pile (in channels or upland areas), sandblasting the pile, and encasing it in concrete to improve the structural integrity of the pier. This activity may include the use of heavy equipment and will involve soil disturbance. Related Activities: Cofferdams, De-watering, Bridge Substructure New, Replacement, or Repair

Removal of Old Substructure- This activity refers to the removal old piling/piers and abutments in both upland and aquatic environments. This activity is performed using heavy equipment and will involve soil disturbance. Related Activities: Grading Outside the Hinge Point, Bridge Substructure New and Replacement, channel impacts

Exceptional Bridge- The following bridges have been identified as "exceptionally significant" and are to be treated as if they are NRHP eligible properties:

Structure Number	Name	Location
S081_21489	Discovery Bridge, US-81	Cedar County
U1825Q5505	10th St. Viaduct, Omaha	Douglas County
S008_14104	Salem-West	Richardson County
S050_04571	Cook Spur South	Otoe County
S480_00231	Dodge over I480	Douglas County
S006_35693L & R	US-6 at N31 Interchange	Douglas County
SL28B00216	Skyline Drive Bridge	Douglas County
S080_40436	Arbor Road	Lancaster County
S080_31817	Phillips Interchange	Hamilton County
S034_24779	Aurora Viaduct	Hamilton County
S002_50816	Missouri River	Otoe County (Nebraska City)
S092_38092	US-30 at N92 Interchange	Merrick County

Overpass Repair or Replacement- A grade separation where the highway passes over a highway or railroad. This activity will include the construction or repair of substructure and/or superstructure and involve heavy equipment and soil disturbance. Installation of lighting, traffic, and pedestrian signals and cameras may be included in work on overpasses. Related Activities: Grading Outside the Hinge Point, New Paving, Erosion Control, Drilled Shafts, Pile Driving-Vibratory, Pile Driving-Impact

Drop-Structures Needed at Bridge Corners- Drop structures typically refer to pipes that take water runoff to a lower elevation with the purpose of preventing erosion. Erosion commonly occurs at the corners of bridges where the runoff from the bridge deck and nearby roadway collects at the end of the bridge rail and flows onto the soil foreslopes. NDOT typically addresses this issue by installing inlets (either curb or area inlets) at the corners of the bridge and using underground pipes to take this runoff to the bottom of the foreslope or another appropriate location. Related Activities: Grading Outside the Hinge Point, Bridges

Shoo-fly- A shoo-fly is considered a structure for conveyance of traffic detoured around a bridge/culvert construction project (for full crossing of the stream channel from bank to bank). Culverts are covered by earthen fill and seeded or otherwise stabilized. Shoo-flies are part of the project engineering design, are

shown on the plans, and are generally paved for traffic use. Shoo-flies are similar to temporary crossings with the addition of traffic safety features and are designed to convey a 2-year storm event, at a minimum. These are removed at the completion of construction. Related Activities: Grading Outside the Hinge Point, Erosion Control, Removal of old substructure Bank Stabilization, Culvert Replacement, Bridge Substructure New and Replacement, Overpass

Crossovers- A temporary or permanent roadway sometimes used on highways where a median separates opposing traffic, typically on 4-lane divided facilities. Crossovers are located in the median and used to cross traffic over to one side of a divided facility, temporarily turning it into an undivided facility. The vacated side is then closed to traffic for construction. Related Activities: New Paving, Bridge Substructure New and Replacement, Bridge Superstructure New and Replacement

Slip-ramps- Typically used under the condition where opposing traffic that is normally divided by a median has been crossed over to occupy one side of a divided facility. Slip-ramps are used to maintain access to interchanges while the interchange ramps are temporarily closed for construction. Slip-ramps can be located inside or outside the existing highway footprint. Related Activities: New Paving, Bridge Substructure New and Replacement, Bridge Superstructure New and Replacement

Detour- Alternate route used when the main route is temporarily closed. Can include the state highway system and/or local roads. Length and duration will dictate the required level of NEPA documentation. Related Activities: Grading or Surfacing for Guardrail, Bridge Work, New Culvert or Culvert Replacement.

Temporary Access- Access drive or road constructed to provide temporary access during construction. Used when alternative access or detour is unavailable. Related Activities: Temporary Grading, Bridge Work, New Culvert or Culvert Replacement.

Work on Detour Route- Refers to improvements needed to a detour route to make it suitable for a sustained increase in traffic. May include resurfacing, widening, pavement replacement, bridge or culvert work, and other items. The determination of whether work is needed on a detour route is made by the District Engineer, Materials & Research Division, and in some cases local governments.

Temporary Surfacing, Grading, Signals - Refers to work needed to accommodate phasing and shifting traffic during construction. Related Activities: Bridge Work, New Culvert or Culvert Replacement.

Temporary Lane Closures- Used when a project or part of a project is constructed under traffic with lane closures controlled by appropriate traffic control devices and practices.

Night-time Work with Lights- This applies to any construction activity that takes place at night where temporary construction lighting is required. Activities needing night work includes but is not limited to work in high traffic areas, bridge deck pours, joint cutting, girder placement, etc. Related Activities: Paving, Bridge Deck Replacement, Bridge Superstructure New and Replacement

Survey and Staking- The action of determining the boundaries, area, or elevations of (land or structures on the earth's surface) by means of measuring angles and distances. Staking refers to slope stakes and/or lath for delineation of right of way and limits of construction. Typically, this would include some vehicle and foot traffic in the survey area. Related Activities: None identified.

Railroad Involvement- A project near or crossing a railroad may require an agreement with the railroad owner. Some examples of when an agreement may be needed are: when pavement is widened though a

RR crossing, when construction activities impact RR crossing equipment, when a bridge is replaced over a railroad. Other types of work may not warrant an agreement, but will require certain special provisions to be included in the construction contract. Examples of this work include: bridge maintenance work over a railroad, a detour through a RR crossing. Coordination will be needed with the Railroad Unit within the Intermodal Planning Section.

MS4 Location- Refers to when all or part of a project occurs within the designated limits of a community that participates in the Municipal Separate Storm Sewer System (MS4) Program. Large metropolitans and many 1st-class cities participate in this program.

Acquisition of New Right-of-Way- Occurs when the work area on a project expands outside of existing State property. Refers to the acquisition of what will become permanent State property for or temporary easements.

Project within 500 feet of a Levee Requiring a 408 Permit- Occurs when a project is less than 500 feet from a levee designated to require a 408 permit by the United Stated Army Corps of Engineers (USACE).

Floodway in Project Limits- Occurs when a project crosses or grading encroaches upon a FEMA designated Regulatory Floodway. Any grade-raise or grading encroachment within a floodway requires a Letter of Map Revision, a process that can add 9 months to a year to the project schedule. General NDOT policy is to avoid impacts to floodways whenever possible. Related Activities: Bridge Work or Replacement, Grading and Surfacing for Guardrail.

Pavement Marking- The process by which paint or other material is placed on the roadway surface to communicate instructions to motorists. This activity includes a truck traveling down the roadway spraying paint onto roadway, but may also include personnel using wheeled sprayers to mark turn arrows etc. Related Activities: None identified

Modifying Lanes by Re-striping- Refers to repurposing wider-than-normal pavement or paved shoulders by removing painted traffic lines and painting new traffic lines in different locations. This process is often referred to as a “road diet”. One example includes re-striping a 2-lane roadway with paved shoulders to become a 3-lane roadway without shoulders.

Rumble Strips (centerline, shoulder, stripes)- A series of raised or depressed strips across a road or along the edge of a lane meant to change the noise a vehicle’s tires make to warn drivers they are approaching the edge of a lane or another restriction. Rumble strips are typically not installed within municipalities because of the noise they generate.