TABLE 4-26
Nonhazardous Waste Sites within the Build Alternative and South Bypass Connection Option Footprints

	Alternative 203	Alternative 402	Option A	Option D
SRP sites	1	1	0	1
Low Risk Sites				
RCRA small quantity or conditionally exempt generators	49	48	15	18
LUST sites reclassified as non-LUST	1	2	0	1
Other TRI sites not engaged in enforcement action	1	1	2	2

4.11 Construction Impacts

Construction impacts generally would be of short duration and end shortly after project completion. The expected short-term construction impacts associated with the build alternatives are identified below.

4.11.1 Transportation

Access to all properties would be maintained by staged construction, temporary access roads, or other appropriate means. Traffic may be stopped for short periods, temporarily inconveniencing motorists and businesses while construction equipment is moved on or across the highway. Emergency service routes and access for emergency vehicles would be maintained.

Road construction activities would involve lane closures and detours. These activities interrupt normal traffic flow and generally impede travel nearby. Construction on existing roadways would cause greater traffic delay than construction on new alignments. Motorists may experience noise and fugitive dust associated with construction/demolition related activities. These impacts would be temporary and of relatively short duration (i.e., most likely two to three years). Refer to subsections 4.11.3 and 4.11.4.

4.11.2 Water Resources

Construction typically associated with bridges, culverts, and roadway approaches would involve grading, filling, and excavation. These activities increase the erosion potential by the reduction in vegetative cover resulting from soil disturbance by heavy equipment. Placement of structures in streams may increase turbidity (suspended solids) and sedimentation and temporarily alter downstream hydraulics and substrate conditions.

Increased sedimentation during construction could cover natural substrate, thereby affecting habitat for some species of fish, mussels, and macroinvertebrates. The degree of impact would vary based on site-specific conditions, such as the type of crossing structure, stream substrate, stream depth, and stream velocity. To help reduce the release of sediment into the study area streams during construction, the IDOT *BDE Manual,* Chapter 59, Landscape Design and Erosion Control, would be implemented. Compliance with Section 280 of the IDOT *Standard Specification for Road and Bridge Construction*, adopted January 1, 2007, would also be met. Soil

erosion and sediment control measures would be installed in areas of active construction, in particular, near stream crossings, wetlands/waters of the U.S., and drainageways. Disturbance of streamside vegetation would be kept to a minimum. To minimize soil loss and subsequent sedimentation, an erosion and sediment control plan would be prepared as part of the contract documents. Areas of special concern, where erosion and sediment control would be needed, would be identified during subsequent studies.

The project would be subject to the requirements of IEPA's NPDES permit for construction site stormwater discharges. NPDES permit coverage is required when a construction project disturbs one acre or more of total land area, or is part of a larger common plan of development that ultimately disturbs one or more acres of total land area. See subsection 4.14, Permits/ Certifications.

As required by the NPDES permit, a SWPPP would be prepared that identifies soil erosion and sediment control practices to be used throughout the construction process to reduce the discharge of pollutants to receiving waters. Appropriate soil erosion and sediment controls would be implemented onsite and be modified to reflect the current phase of construction. All temporary erosion and sediment control measures would be inspected, maintained, and repaired/replaced, as necessary, to maintain NPDES compliance. The following is a list of BMPs that could be used to improve water quality, reduce soil erosion, and limit the amount of dust created in association with construction activities for the project:

- Storm drain inlet protection
- Stone aprons at flared end sections
- Stabilized construction entrances
- Temporary stabilization (mulching, seeding)
- Rolled erosion control products (erosion control blankets or mats)
- Permanent seeding
- Silt fence barrier
- Temporary ditch checks
- Sedimentation basins
- Diversion dikes/channels
- Preservation of existing vegetation

4.11.3 Air Quality

Demolition and construction can result in short-term increases in fugitive dust and equipment-related particulate emissions in and around the study area. Air quality impacts will be short-term, occurring only while demolition and construction are in progress and local conditions are appropriate. Fugitive dust emissions typically are associated with building demolition, ground clearing, site preparation, grading, stockpiling of materials, onsite movement of equipment, and transport of materials. The potential is greatest during dry periods, periods of intense construction activity, and high wind conditions.

IDOT's *Standard Specifications for Road and Bridge Construction*, Article 107.36, includes provisions on dust control. Under these provisions, dust and airborne dirt generated by construction work would be controlled through dust control procedures or a specific dust control plan, when warranted. The contractor and IDOT would meet to review the nature and extent of dust-generating activities and would cooperatively develop specific types of control

techniques appropriate to the specific situation. Techniques that may warrant consideration include minimizing track-out of soil onto nearby publicly traveled roads, reducing speed on unpaved roads, and covering haul vehicles.

During construction, blowing dust from areas cleared or excavated for access or construction purposes can be minimized by applying water to unpaved areas. The effectiveness of watering for fugitive dust control depends on the frequency of application. Street cleaning would also be used to control dust, as necessary. Paved areas that have soil on them from the construction site would be cleaned as needed, using a street sweeper or some alternative method.

Other construction-related air quality control practices that could be used during construction include diesel emission reduction strategies, such as idling restrictions, diesel engine retrofits for construction equipment, and using clean fuels (ultra-low sulfur diesel, emulsified diesel, compressed natural gas). Equipment-related particulate emissions could also be reduced if construction equipment is well-maintained. With the application of appropriate measures to limit emissions during construction, the project would not cause significant, short-term particulate matter air quality impacts.

4.11.4 Construction Noise

Trucks and machinery used for construction produce noise that may affect some land uses and activities during the construction period. Individuals inhabiting the homes along the proposed improvements would, at some time, experience perceptible construction noise from implementation of the project. To minimize or eliminate the effect of construction noise on receptors, mitigation measures have been incorporated into IDOT's *Standard Specifications for Road and Bridge Construction*, Article 107.35.[32]

The construction of the proposed project could result in temporary noise and vibration increases within and adjacent to the study area. The noise and vibration would be generated primarily from trucks and heavy machinery used during construction and demolition. Any anticipated noise and vibration impacts likely would be confined to normal working hours, periods generally considered to be tolerant of noise and vibration. No adverse noise and vibration impacts are expected during construction.

4.11.5 Solid Waste

The contractor would dispose of grass, shrubs, trees, old pavement, miscellaneous debris, and other solid wastes generated during demolition and construction in accordance with state and federal regulations, as necessary. Waste disposal would follow IDOT's *Standard Specifications for Road and Bridge Construction*, Article 202.03. Nonhazardous and uncontaminated construction and demolition debris would be salvaged to the extent practical.

Solid waste including trash, construction debris, and other items would be collected and disposed of offsite by the contractor. The contractor would be responsible for acquiring the permit required for such disposal. Onsite burning would not be permitted. No solid materials, including building materials, would be discharged to surface waters or wetlands, except as

[32] For example, engines and engine-driven equipment used for hauling/construction are to be equipped with mufflers. Construction within 1,000 feet of an occupied residence, motel, hospital, or similar receptor is restricted to the hours of 7 A.M. until 10 P.M. for most work (excluding operation/maintenance of safety and traffic control devices, construction of an emergency nature, etc.).

authorized (e.g., Section 404 CWA permit, IWPA, etc.). All waste would be collected and stored in approved receptacles. Liquid wastes would not be deposited into dumpsters or other containers that may leak. Receptacles with deficiencies would be replaced as soon as possible, and appropriate cleanup would take place if necessary. Construction debris would not be buried onsite. Waste disposal would comply with all local, state, and federal regulations. Proposed borrow areas, use areas (e.g., temporary access roads, staging/storage areas), and waste areas would follow IDOT's *Standard Specifications for Road and Bridge Construction*, Article 107.22.

Onsite special waste storage, including hazardous waste, would be minimized and would employ labeled, separate special/hazardous waste containers. Nonhazardous waste would be segregated and handled separately. Special and hazardous wastes would be disposed of in the manner specified by local, state, and federal regulations.

Concrete waste or washout would not be allowed to reach a stormwater drainage system or watercourse. Concrete washout would be contained and completed in a designated location. Washout containment facilities would be of sufficient volume to contain all liquid and concrete waste materials, including enough capacity for anticipated levels of rainwater.

4.11.6 Utility Services

Construction work would be coordinated with public utilities to avoid conflicts and minimize planned interruptions of service. When service interruptions are unavoidable, every effort would be made to limit their duration, and every effort would be made to give the public lengthy fair warning of any planned occurrence of service interruption.

4.11.7 Energy

Construction of the proposed improvement would require indirect consumption of energy for processing materials, construction activities and maintenance for the lane miles to be added within the project limits. Energy consumption by vehicles in the area may increase during construction due to possible traffic delays. The number of improvements and the time required to complete them would have a corresponding affect on the fossil fuels consumed. However, in the long term, post-construction operational energy requirements will offset construction and maintenance energy requirements and result in a net savings in energy usage.

4.12 Indirect and Cumulative Impacts

4.12.1 Approach

Potential indirect and cumulative impacts are defined as follows:

> *Indirect effects* are "caused by an action and are later in time or further removed in distance but are still reasonably foreseeable" (40 CFR 1508.8).
>
> *Cumulative effects* "result from the incremental consequences of an action when added to other past and reasonably foreseeable future actions" (40 CFR 1508.7).

The basis for this analysis is the recognition that while a project has various direct impacts on social and environmental resources, it may also have indirect and cumulative impacts