

LANDSCAPE ARCHITECTURE/ENVIRONMENTAL REVIEW OF ENVIRONMENTAL LAWS

PROJECT REVIEWS INCLUDE MOST OR ALL OF THE FOLLOWING TOPICS:

WATER ISSUES

Streams and Rivers - regulated by both federal and state agencies for control of water quality.

United States Army Corps of Engineers - for waters of the U.S.

United States Coast Guard - for navigable waters of the U.S.

New York State Department of Environmental Conservation (waters of NY)

Wetlands - regulated by both federal and state agencies. No dredge or fill allowed in waters. U.S.A.C.O.E. regulates all wetlands regardless of size -

Definition uses 3 parameters: Hydrology, Wetland plants & Hydric soils

N.Y.S.D.E.C. regulates wetlands they have mapped which are 12.4 acres (2 Hectares) or >

Adirondack wetlands are regulated at 1 acre or >

Special wetlands can be regulated at any size

Aquifers - sole source aquifers are regulated by U.S. Environmental Protection Agency (EPA) and by the NYSDEC. Ex. = Homer / Preble / Cortland Sole Source Aquifer

Floodplains and Flood Control Channels - regulated by federal and state agencies for development within these areas.

PLANTS AND ANIMALS

All projects must comply with the **Endangered Species Act**. Check all projects for the presence of threatened or endangered species. Federal agency = U.S. Fish and Wildlife Service; State Agency = NYSDEC - Natural Heritage Office

HISTORIC and ARCHAEOLOGICAL RESOURCES

Section 106 of the Historic Preservation Act requires federal agencies to consider the effects of their actions on historic sites, structures, or other cultural resources.

State Historic Preservation Act is administered by NYS Office of Parks, Recreation and Historic Preservation NYSOPRHP

The Historic Preservation Acts are coordinated through the State Historic Preservation Office (SHPO) which is part of (NYSOPRHP)

SHPO renders an "EFFECT DETERMINATION" of project on cultural resources.

Determinations = No Effect, No Adverse Effect, or Adverse Effect

NOISE

Federal law sets Noise Level Standards. Projects must take into consideration the impacts to environment of project related noise. Noise is generated by a source and heard by a receiver. Impacts are sometimes reduced by putting distance between source and receiver, reducing

activity in impacted area, or placing barrier between source and receiver.

Different Noise Levels are established for different use areas Airport vs. Hospital.

66dBA = Noise level acceptable adjacent to highway.

Lawn mower - 90dBA; Jet taking off 100' away - 110dBA

5dBA noise level difference is not perceptible by most people - 10dBA change is noticeable.

AIR

The Clean Air Act sets ambient air quality standards for counties throughout the U.S. and requires that new projects do not degrade air quality. Standards are set for carbon monoxide, nitrous oxides, particulate matter, and ozone. Sources of air pollution can be **stationary** (factory) or **mobile** (cars/trucks moving along a highway).

AESTHETIC RESOURCES

Parts of NEPA and SEQR require that the Visual Environment be considered for all projects.

A **visual assessment** would take into consideration the views “ to and from “ the project. The assessment would also identify potential viewers and suggest possible means to reduce visual impacts caused by the project.

NEPA - National Environmental Policy Act - 1969

Federal Law that applies whenever a project is undertaken, funded or approved by a federal agency.

Class I - All major projects with significant impacts to the environment, to social issues or to the economy of a project area. These projects require an **Environmental Impact Statement**

Examples: Route 96 in Ithaca - The Octopus and Fort Drum

Class II - All projects listed as having no significant effect on the environment.

Categorical Exclusion

Example: The majority of highway projects which resurface, replace or involve maintenance issues. Resurface I-81 and Replace Br. In F²ville.

Class III - Projects that have unknown impacts and need more investigation.

All **Environmental Assessments** are prepared to help make a decision on what impacts are being created by the project. A project is then determined to be either a Class I project and an EIS would be written or a Class II project that has a Finding of No Significant Impact (FONSI).

Example: Baldwinsville Bypass

Route 3/Salmon River

SEQR - State Environmental Quality Review Act - 1975

State Law that applies whenever a project is directly undertaken, funded or approved by local, regional and state agencies. SEQR is more restrictive than NEPA.

Type I - EIS (DOT calls this a Non-Type II - EIS) - Projects that have been determined to have significant impacts to the environment require preparation of an **Environmental Impact**

Statement (Like Class I above).

UNLISTED ACTION (Dot calls this a Non-Type II) - Projects that have unknown impacts and need more information. **An Environmental Assessment** is prepared. (Comparable to Class III above).

Type II - Projects have no significant impact on the environment. A list is in the actual law and agencies such as DOT have prepared their own list of actions that would not have any impacts (like Class II above). Once a project is determined to be a Type II, no further environmental documentation is required under SEQR.

Both of these laws established a process that requires the consideration of environmental factors early in the planning stages of an action. By incorporating a systematic approach to environmental review, projects can be modified as needed to avoid adverse impacts on the environment.

Environmental Impact Statement

An EIS is a document that impartially analyzes the significant environmental effects of a proposed action and how these effects can be avoided or minimized. A draft EIS is prepared and made available for **public review** and comment. The final EIS responds to substantive issues.

AGRICULTURAL LAND RESOURCES

National Farmland Protection Act requires justification for the taking of prime farmlands for any non-farm use

State law requires evaluation of any taking of prime farmland. NYS Department of Agriculture and Markets.

Hazardous Waste/Asbestos

Hazardous waste/Asbestos Assessments require that an evaluation of property to be acquired be made. Assessment reveals potential for exposure to hazardous wastes in the form of soil or water residues, buried drums, underground storage tanks, chemical storage, etc. Avoidance of hazardous waste(s) or the acquisition of contaminated property is the goal of this assessment. Petroleum, heavy metals, PCBs, nuclear wastes, chemical stockpiles are to be avoided.

Asbestos Laws

Federal Law = AHERA

State law = NYS Department of Labor (NYSDOL) Code Rule #56

Both laws require, that if asbestos is disturbed, that the public and workers be protected from exposure to airborne asbestos fibers (Friable Asbestos)

SECTION 4(F)

Whenever a project will have an effect on a park, recreation area, wildlife/waterfowl refuge, or public or private cultural resource, it must be

evaluated according to 4(F) regulations when USDOT funding is involved.

SECTION 6(F)

Whenever a project will impact a park, recreation area or wildlife / waterfowl refuge that has been enhanced with Land and Water Conservation Funds [6(F) funds], a 6(F) evaluation must be completed.

COASTAL ZONE MANAGEMENT

State Law administered by NYS Department of State (NYS DOS) requires an impact evaluation on projects which may have an effect on all state waters affected by tide or waters of the Great Lakes.

SOIL EROSION AND WATER POLLUTION CONTROL

Federal and State jurisdiction by U.S. EPA and NYSDEC

Regulations require control of discharges/runoff during operations or construction. Plan or program is designed to show placement of check dams, turbidity curtains, silt fencing, settlement basins, diversion structures, coffer systems etc., when they are to be in place, and how they will be maintained.

NPDES = National Pollution Discharge Elimination System

SPDES = State Pollution Discharge Elimination System

AMERICANS WITH DISABILITIES ACT (ADA)

ADAAG= Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities. Guidelines provide standards for design built environments which facilitate mobility for the disabled. Regulations include standards for: sidewalks, curb ramps, stairs, handrails, elevators, restrooms, counter tops, machinery controls, warning devices for sight or hearing impaired etc.

TRIGGERS FOR ENVIRONMENTAL EVALUATION

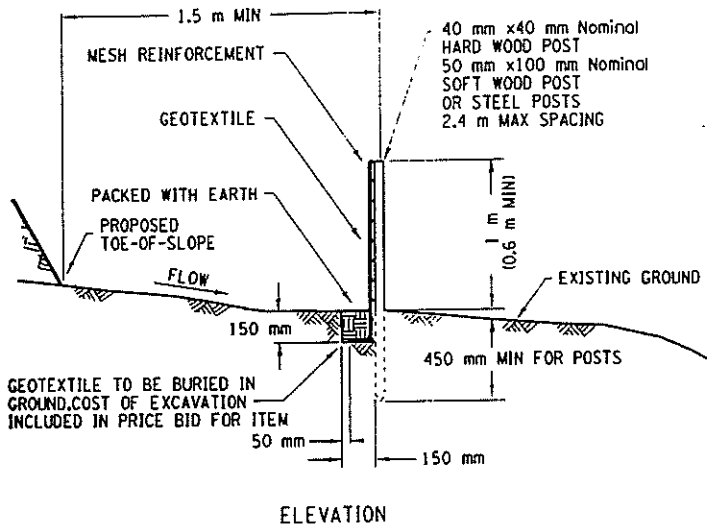
Acquisition of property; relocation of people or businesses; significant changes to the environment; economic impacts and other social impacts.

ENVIRONMENTAL IMPACT REDUCTION = AVOIDANCE, MINIMIZATION, MITIGATION

TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES

The following descriptions are details of sediment control practices "which" represent those most frequently used in construction activities:

SILT FENCE



CAUTION:

Do not install sediment fence across intermittent or permanent streams, channels, or location where concentrated flow is anticipated.

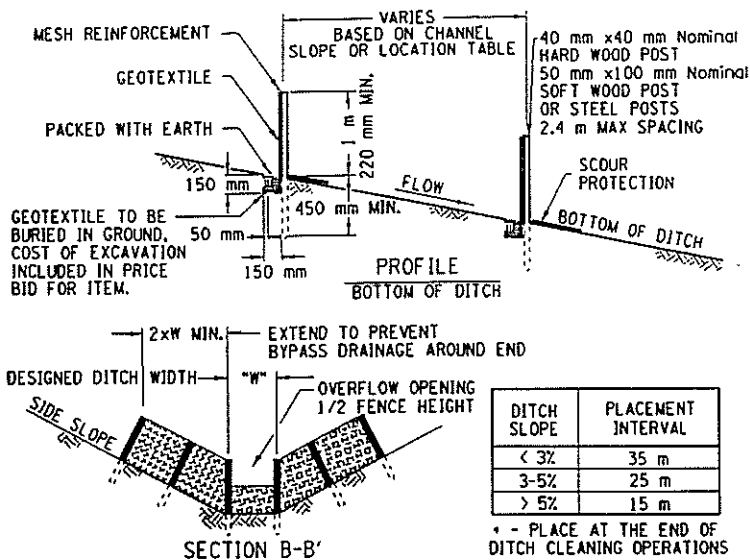
Installation Details:

1. Locate the silt fence at least 1.5m from the toe of steep slopes and nearly level throughout its length.
2. Dig a trench approximately 150mm deep and 150mm wide in the line of the fence.
3. Drive posts securely at least 450mm into the ground, on the down slope side of the trench. Space posts a maximum of 2.4m apart if fence is supported by wire. Adjust spacing to place posts at low points along the fence line.
4. Fasten support wire fence to up slope side of posts, extending 6 inches into the trench. Attach continuous length of fabric to up slope side of fence posts. Avoid joints, particularly at low points in the fence line. Where joints are necessary, fasten fabric securely to support posts and overlap to the next post.
5. Place the fabric in the trench so the bottom folds across the bottom of the trench. Place backfill in the trench over the fabric to the ground line and compact with a power tamper.

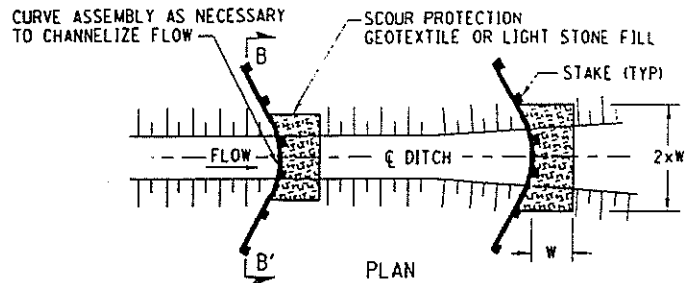
MAINTENANCE

- Inspect sediment fences periodically and after each rainfall event.
- Should fabric tear, decompose, or in any way become ineffective, replace it immediately.
- Remove sediment deposits promptly to provide adequate storage volume for the next rain and reduce pressure on fence. Take care to avoid undermining fence during clean out.
- Remove all fencing materials and unstable sediment deposits after the contributing drainage area has been properly stabilized, inspected, and approved. Grade and stabilize the disturbed area as shown in the vegetation plan.

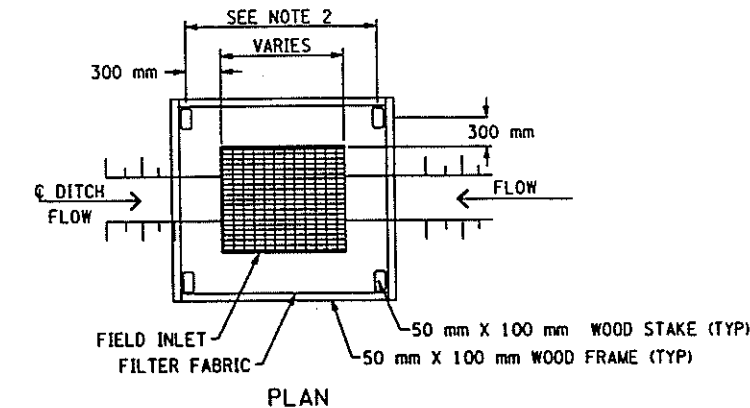
SILT FENCE CHECK DAM



See installation Details and Maintenance for Silt Fence (Previous Page)

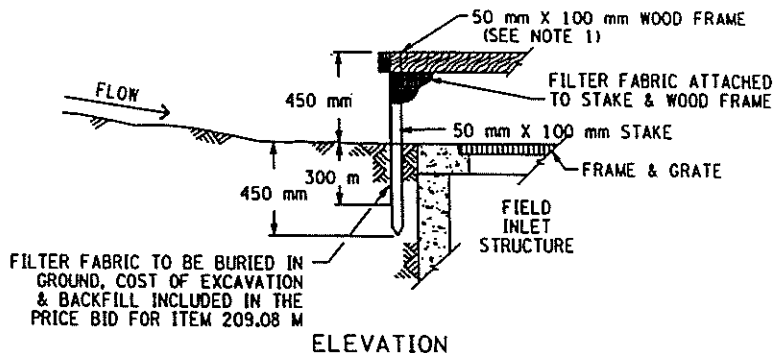


SILT FENCE - FIELD INLET PROTECTION



- NOTES:
1. A 50 mm X 100 mm WOOD FRAME SHALL BE COMPLETED AROUND THE TOP OF THE STAKES OVER THE ATTACHED FABRIC FOR OVERFLOW STABILITY.
 2. SPACE STAKES EVENLY AROUND INLET TO A MAXIMUM OF 1.2 m APART.

Ⓞ SILT FENCE



Description

A permeable barrier in the form of a fence installed around the drop inlet of a storm water system to filter sediment from runoff. The maximum drainage area for this practice is 1 acre.

Installation Details

1. Filter fabric should have an equivalent opening size (spaces per inch) of 40-85. Burlap may be used for applications not to exceed 3 months.
2. Cut fabric from a continuous roll to eliminate joints. If necessary overlap joints to the next stake.

3. Stakes shall be placed at each corner of the drop inlet. They should be at least 900mm long, driven at least 300mm into the ground, and placed so any overflow will fall into the drop inlet and not scour soil adjacent to the structure.
4. Fabric shall be embedded a minimum of 300mm below ground, backfilled with soil or stone, and securely fastened to the frame.
5. A 50mm x 100mm wood frame will be built around the crest for overflow stability.

MAINTENANCE

- The basin should be inspected after each rainfall event.
- Fabric should be repaired or fastened as needed.
- Remove the sediment when the storage area is about half full. Care should be taken to not disturb the buried portion of the fabric.
- Once the drainage area has been stabilized, remove and dispose of material. Grade, smooth, compact and stabilize the site adjacent to the drop inlet per site requirements.

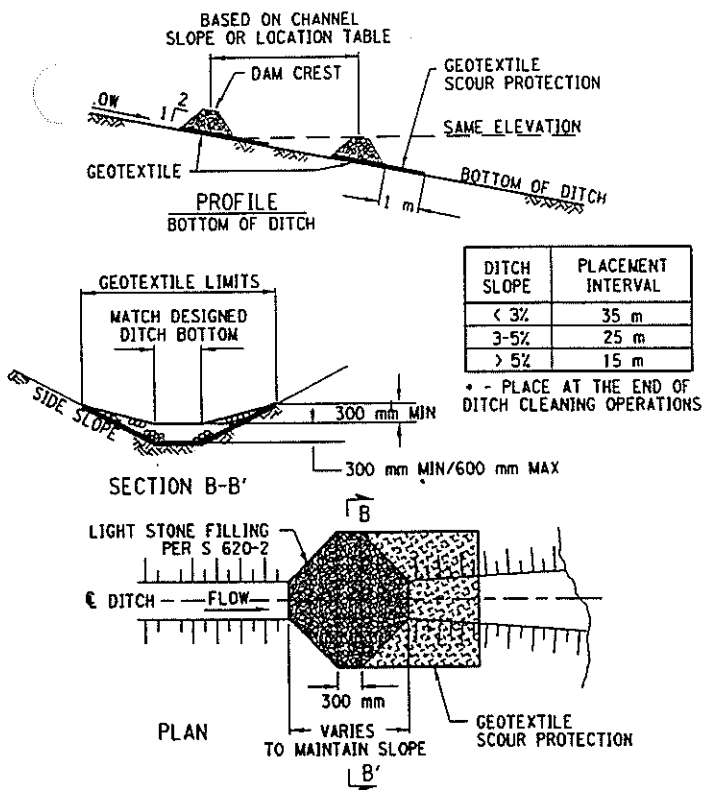
STONE CHECK DAM

Description

Small temporary stone dams placed across a drainage way to reduce erosion in the channel by reducing velocity. The maximum drainage area to this practice is 2 acres.

Installation Details

1. Light stone will be placed on a filter fabric foundation in accordance with the lines, grades, and locations shown in the plan.
2. Set spacing of check dams to assure that the elevation of the crest of the downstream dam is at the same elevation as the toe of the upstream dam.
3. Extend the stone to a minimum of 300mm beyond the top of the ditch bottom.
4. Protect the channel downstream of the lowest check dam from scour and erosion with stone or liner as appropriate.
5. Ensure that culvert entrances to the channel or ditch below check dams are not subject to damage or blockage from displaced stones.



DITCH SLOPE	PLACEMENT INTERVAL
< 3%	35 m
3-5%	25 m
> 5%	15 m

• - PLACE AT THE END OF DITCH CLEANING OPERATIONS

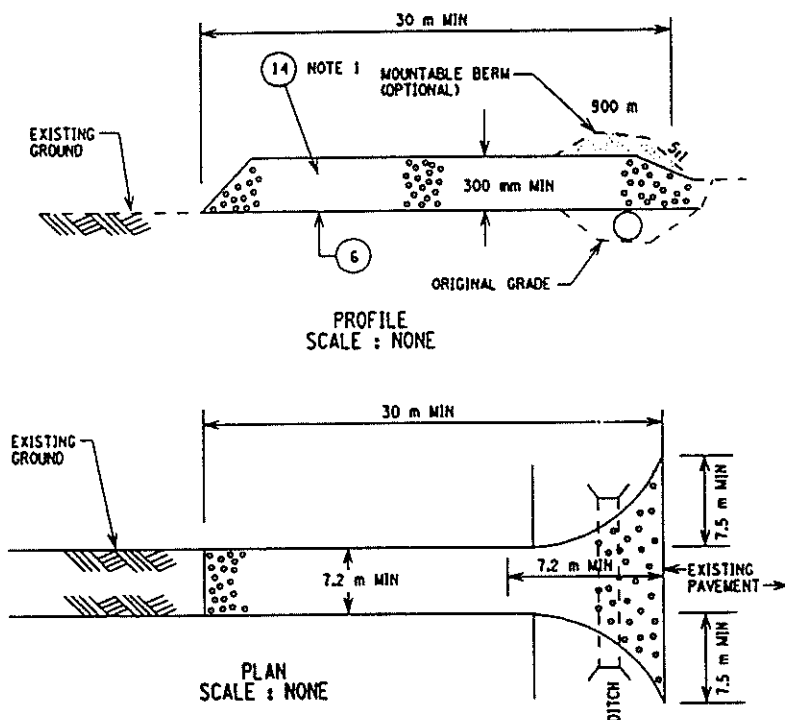
CHECK DAM (STONE)

LOCATION TABLE		ITEM 209.0401NN M
STATIONS	SIDE	REMARKS

Maintenance

- The check dams should be inspected after each runoff event and all damage corrected immediately.
- If significant erosion has occurred between structures, a liner of stone or other suitable material should be installed in that portion of the channel.
- Remove sediment accumulated behind the dam as needed to allow water to drain through the stone check dam and prevent large flows from carrying sediment over the dam.
- Replace stones as needed to maintain the design cross section of the structures.
- Once the contributing drainage area is stabilized, the stone check dams can be removed and the channel vegetated according to the site specifications.
- On steeper channel grades the stone check dam may be blended to the existing grade of the channel to provide scour protection.

STABILIZED CONSTRUCTION ENTRANCE



Description

A stabilized pad of aggregate underlain with filter cloth, that is located at all points of construction traffic access to the site to reduce or eliminate the tracking of sediment onto public right-of-ways or streets.

Installation Details

1. Grade entrance by removing sod down to firm subgrade.
2. Place filter cloth over the entrance subgrade.
 - Minimum width - 3.6 m
 - Minimum length - 15 m
3. Construct aggregate pad with positive drainage a minimum of 150 mm inches thick using 50 mm stone or reclaimed or recycled concrete equivalent.
4. Surface water flowing to the entrance must be piped under the entrance or controlled by a mountable berm to direct flow away from the roadway. The berm shall have slopes no steeper than 5:1.

stone or reclaimed or recycled concrete equivalent.

4. Surface water flowing to the entrance must be piped under the entrance or controlled by a mountable berm to direct flow away from the roadway. The berm shall have slopes no steeper than 5:1.
5. If required, wash stations will be constructed in the same manner with drainage provided to an appropriate sediment trapping device.

Maintenance

- The entrance shall be maintained in a manner that will prevent tracking of sediment into public right-of-ways or streets.
- Inspect all entrances after a rain.
- Periodic top dressing with additional aggregate may be required.
- All sediment and aggregate spilled, dropped, or washed onto public rights-of-way must be removed immediately.
- All sediment shall be prevented from entering storm drains, ditches or water courses.

“TYPICAL” NOTES USED ON A EROSION CONTROL PLAN”

GENERAL NOTES

THE ELEMENTS OF THIS PAGE KNOWN AS “STORMWATER POLLUTION PREVENTION AND EROSION CONTROL PLAN” SHALL BE USED DURING CONSTRUCTION IN ANY AREA WHERE FINE MATERIALS MAY ENTER THE WATERS OF THE STATE OF NEW YORK.

EXACT LIMITS OF ENVIRONMENTAL TREATMENT SUBJECT TO WATER ELEVATION AT THE TIME OF CONSTRUCTION. IF DRY CONDITIONS EXIST AT THE DESIGN PROTECTION LOCATIONS, USE ITEM 209.08. IF THE WATER ELEVATION, ESTIMATED BY THE ENGINEER IN CHARGE, IS TO REACH OR IS AT THE DESIGN LOCATIONS, USE ITEM 209.07.

NOTES

1. ALL STREAM CHANNEL WORK SHALL BE LIMITED TO WITHIN THE DESIGNATED RIGHT OF WAY, EASEMENT, T.O. LIMITS OR RELEASE.
2. ALL CONTROLS SHALL BE PLACED PRIOR TO STARTING EARTHWORK OPERATIONS AND SHALL REMAIN IN PLACE UNTIL THE NEW SLOPES ARE STABILIZED WITH SEEDING AND/OR SLOPE PROTECTION.
3. ALL NECESSARY PRECAUTIONS SHALL BE TAKEN TO PREVENT MIGRATION

INTO WATER BY SILT, SEDIMENT, FUELS, SOLVENTS, LUBRICANTS, CONCRETE LEACHATE OR ANY OTHER POLLUTANT ASSOCIATED WITH CONSTRUCTION PROCEDURES.

4. ANY DEBRIS OR EXCESS MATERIALS FROM CONSTRUCTION OF THIS PROJECT SHALL BE IMMEDIATELY AND COMPLETELY REMOVED FROM THE BED AND BANKS OF ALL WATER AREAS TO AN APPROPRIATE UPLAND AREA FOR DISPOSAL.
5. PERIODIC CLEANING AND INSPECTION OF TEMPORARY SOIL EROSION AND SEDIMENT CONTROL DEVICES WILL BE NECESSARY. MAINTENANCE OF THESE DEVICES IS REQUIRED AFTER ANY STORM EVENT.
6. THE COST OF INSTALLING, CLEANING AND REMOVING TEMPORARY SOIL EROSION AND SEDIMENT CONTROL DEVICES WILL BE NECESSARY. MAINTENANCE OF THESE DEVICES IS REQUIRED AFTER ANY STORM EVENT.
7. THE COST OF INSTALLING, CLEANING AND REMOVING TEMPORARY SOIL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE PAID FOR UNDER THE ITEMS SHOWN.
8. IN THE EVENT DEWATERING OPERATIONS BECOME NECESSARY, A SETTLING BASIN WILL BE REQUIRED UNLESS THE PUMP DISCHARGE IS AS CLEAR AND FREE OF SEDIMENT AS THE FLOWING STREAM.
9. HEAVY EQUIPMENT SHALL NOT BE DRIVEN IN THE WATER.
10. NO DISCHARGE OF TEMPORARY FILL MATERIAL INTO THE WATERWAY IS PERMITTED. SHOULD THE CONTRACTOR WISH TO CONSTRUCT A TEMPORARY ACCESS OR CAUSEWAY IN THE WATER TO FACILITATE REMOVALS OR NEW CONSTRUCTION, ADDITIONAL PERMITS FROM THE U.S. ARMY CORPS OF ENGINEERS AND N.Y.S. DEPT. OF ENVIRONMENTAL CONSERVATION MAY BE REQUIRED. ALL EFFORTS SHALL BE COORDINATED THRU THE REGIONAL ENVIRONMENTAL CONTACT. DELAYS OR EXTRA COSTS ASSOCIATED WITH SECURING APPROVALS, OR ADDITIONAL PERMITS, FOR THE PLACEMENT OF THE TEMPORARY FILLS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
11. ANY ACCESS WAYS OR DETOURS SHALL BE COMPLETELY ISOLATED WITH EROSION CONTROL TREATMENTS. IF THE ACCESS WAY IS TO REMAIN IN PLACE LONGER THAN 5 DAYS, THE EXPOSED SOILS ARE TO BE TEMPORARILY SEEDED AND MULCHED AS DESCRIBED UNDER SECTION 209, TEMPORARY SOIL EROSION AND SEDIMENT CONTROL.

12. SAND BAGS, APPROVED FOR USE, SHALL BE OF A REINFORCED GEOTEXTILE TYPE WITH TIES. NO BURLAP BAGS SHALL BE USED. SAND OR GRAVEL MAY BE USED AS THE FILL MATERIAL WITH THIS TYPE OF BAG IF THE MATERIAL IS DOUBLE BAGGED AND INDIVIDUALLY TIED TO PREVENT LEAKAGE. GRAVEL MATERIAL USED TO FILL THE BAGS SHALL MEET THE SIZE DESIGNATION #1 OF TABLE 703-4 OF THE STANDARD NYSDOT SPECIFICATION.

U.S. ARMY CORPS OF ENGINEERS

SECTION 404 OF THE CLEAN WATER ACT (33 U.S.C. 1344) PROHIBITS THE DISCHARGE OF DREDGED OR FILL MATERIALS INTO THE WATERS OF THE UNITED STATES WITHOUT A PERMIT FROM THE U.S. ARMY CORPS OF ENGINEERS. THE PROPOSED WORK HAS BEEN DETERMINED TO BE A MINOR ACTIVITY, MEETING THE TERMS AND CONDITIONS SET FORTH UNDER THE NATIONWIDE PERMIT PROGRAM. SEE THE PROJECT APPROVAL FOR DETAILED PERMIT CONDITIONS.

N.Y.S. DEPARTMENT OF ENVIRONMENTAL CONSERVATION

THE CONTRACTOR SHALL COMPLY WITH ALL PROVISIONS OF THE DEPARTMENT OF ENVIRONMENTAL CONSERVATION BLANKET WATER QUALITY CERTIFICATION AND/OR FRESHWATER WETLANDS PERMIT. SEE THE PROJECT PROPOSAL FOR DETAILED PERMIT CONDITIONS.

WORK OPERATIONS SHALL NOT BE DONE IN THE WATERS OF _____ BETWEEN _____ AND _____ OF ANY CALENDAR YEAR TO PROTECT FISHERY RESOURCES. IF SOIL EROSION CONTROLS (TURBIDITY CURTAINS, COFFERDAMS, ETC.) ARE PROPERLY INSTALLED, WORK MAY BE PERMITTED IN CONTAINED AREAS WITHIN THE POSTED DATES WITH APPROVAL BY BOTH THE ENGINEER-IN-CHARGE AND N.Y.S.D.E.C.

SPECIAL COFFERDAM NOTE

EXCEPTION TO THE MATERIAL SPECIFICATION FOR ITEM 552.07XX COFFERDAMS (WATER DISCHARGE CONTROL) SHALL BE ALLOWED, PROVIDED THAT ALL OTHER REQUIREMENTS UNDER THE SPECIFICATION ARE MET, AS WELL AS THOSE OF ALL REGULATORY PERMIT AGENCIES. PROPOSED SYSTEMS ARE SUBJECT TO REGIONAL ENVIRONMENTAL REVIEW AND WRITTEN APPROVAL FROM THE REGIONAL CONSTRUCTION ENGINEER.

PEDESTRIAN AND BICYCLING FACILITIES

PEDESTRIANS

Pedestrians are a part of almost all roadway environments (with the exception of Interstates and many other similar controlled access highways) and are a major consideration in the planning, design and operation of our transportation facilities. In fact, Section 1156 of the State of New York Vehicle and Traffic Law, establishes how pedestrians are required to walk along the state's highways (pedestrians are permitted to walk along the left hand side of the shoulder or roadway-facing traffic). Of course, the presence of pedestrians, both able bodied and disabled, is greatest along the streets and highways in the more urban areas of New York State. However, they are integral users of the State's transportation system and they should be considered whenever a highway is being constructed or rehabilitated.

PEDESTRIAN FACILITIES DESIGN POLICY

ADA and Federal Highway Administration (FHWA) regulations require that, whenever a State highway is to be constructed, reconstructed, or rehabilitated, or when the Department engages in any other public improvement project, the scoping team or designer should determine whether the existing pedestrian accommodations:

1. are adequate
2. require reconstruction
3. require rehabilitation, or
4. warrant the construction of new facilities

Decisions concerning when and where to construct, replace, or rehabilitate sidewalks or other pedestrian facilities affect the schedule and cost of a project. Therefore, the need for sidewalks and other pedestrian facilities should be addressed at project scoping meetings and should be discussed in the scoping and design approval documents. Addressing pedestrian issues early in the project's evolution will help avoid problems of funding, design, construction and maintenance.

New sidewalks should be constructed whenever they are consistent with the installation guidelines and warranted, regardless of whether or not they currently exist. Existing, deteriorated, or non-accessible sidewalks (those not meeting the minimum requirements of current ADAAG standards) should be rehabilitated or replaced. Incomplete systems, if needed, should be made complete and should have logical termini. Existing, unnecessary sidewalks should be eliminated. However, if they are left in place, they should be accessible. Scoping and Design Approval Documents should discuss where better accommodation is needed, but is not being provided, and should also document any decision to remove an existing sidewalk.

The Department's standard minimum width for sidewalks is 1.525 m. The 1.525 m width accommodates two-way pedestrian traffic and meets current accessibility standards. Wider sidewalks are occasionally necessary.

BICYCLISTS

Bicyclists have the same rights and responsibilities as the operators of motor vehicles, except as provided in Sections 1230-1236 of the “New York State Vehicle and Traffic Law.”

When designing highway projects, it is essential to consider physical improvements for bicycles just as for other vehicles in the traffic mix. Therefore, all state highways should be designed and constructed to safely accommodate known and anticipated bicycle traffic consistent with the needs identified during project scoping or during preliminary design. If the scoping and Design Approval Documents indicate that bicycle facilities are needed, but cannot be provided, an explanation should be provided in the Design Approval Documents. Where shoulders are not provided, the most common accommodation for bicyclists is the outside shared travel lane. Recommended width of this lane is 14 feet (3.6 m).

Special consideration should be given to routes that have been mapped by MPO’s or have been identified in other local or state bicycle transportation plans. Also, special consideration should be given in areas near schools and residences. Significant numbers of children may require special signage that will alert others to their presence.

DEFINITIONS

Bicycle facilities - A general term denoting improvements and provisions made by public agencies to accommodate or encourage bicycling. These include bicycle parking facilities and shared roadways.

Bicycle lane - A portion of a roadway which has been designated by striping, pavement markings and signing for the preferential use of bicyclists.

Bicycle path - A path that is physically separated from motor vehicle traffic by an open space or barrier and may be in the highway right-of-way or an independent right-of-way.

Bicycle route - A system or network of roads, streets, paths or ways that are open to bicycle travel and that have been designated by the jurisdiction(s) having authority with appropriate directional and informational route markers (with or without a specific bicycle route number). Established bicycle routes should provide for continuous routing between logical termini.

Shared roadway - A roadway which may or may not be designated and marked as a bicycle route, but which is open to both bicycle and motor vehicle travel and upon which no bicycle lane is designated. Examples may include roads with wide curb lanes and roads with shoulders.

Wide curb lane - The right-most through traffic lane that has a minimum usable width of 3.6 m.

AMERICANS WITH DISABILITIES ACT OF 1990 (ADA)

In accordance with the ADA, the ADA Accessibility Guidelines for Building and Facilities (ADAAG) was developed to be used during the design, construction and alterations of most buildings and facilities.

Transportation Engineering is primarily concerned with outdoor facilities that include sidewalks, sidewalk ramps, curb ramps, stairs, handrails and parking facilities. The following definitions, charts, and details, highlight ADAAG Standards required for transportation related facilities.

DEFINITIONS

Accessible Route - A continuous unobstructed path connecting all accessible elements and spaces of a building or facility. Exterior accessible routes may include parking access aisles, curb ramps, crosswalks at vehicular ways, walks, ramps and lifts.

Note: A shoulder designed to normal Department standards in respect to cross slope does not satisfy this requirement.

Alteration - A change to a building or facility that affects or could affect the usability of the building or facility or part thereof. Alterations include, but are not limited to: remodeling, renovation, rehabilitation, reconstruction, historic restoration or changes or rearrangement of the structural parts or elements. Normal maintenance activities or changes to mechanical or electrical systems are not alterations unless they affect the usability of the building or facility by pedestrians.

Note: Most Department projects involving pedestrian facilities are alterations for the purposes of ADAAG interpretation. As described in ADAAG, "new construction" would include a new street or highway on a new location.

Continuous passage - A continuous, unobstructed pedestrian circulation path within a public sidewalk, connecting pedestrian areas, elements, and facilities in the public right-of-way to accessible routes on adjacent sites. A continuous passage may be provided in lieu of an accessible route in a public right-of-way.

Pedestrian facilities - Any features or elements used by disabled or able-bodied pedestrians to move from one point to another which include sidewalks, crosswalks, traffic control devices, curb ramps, stairs, and general pedestrian areas such as plazas, public transit loading zones, and grade separation structures.

Public sidewalk - A smooth, stable and slip resistant exterior pathway intended for pedestrian use along a vehicular way in the public right-of-way or in a public pedestrian easement.

Site Infeasibility - Existing site development conditions that prohibit the incorporation of elements, spaces, or features which are in full and strict compliance with the **minimum** (emphasis added) requirements for new construction in the public right-of-way and which are necessary for pedestrian

access, circulation, and use.

Note: If it is infeasible to fully comply with the accessibility requirements, the design must comply to the maximum extent feasible and the decision should be documented in the project files as discussed in Chapter 5, Section 5.1. The ADAAG discusses infeasibility in Section 4.1.6(l)(j).

NEW CONSTRUCTION: MINIMUM REQUIREMENTS

PUBLIC SIDEWALKS

(1) Width:

- (a) The minimum clear width of a continuous passage shall be 36 in (915 mm). Note: NYSDOT minimum recommended sidewalk width is 60" (1.525 M) which exceeds this minimum ADAAG Standard. If a person in a wheelchair must make a turn around an obstruction, the minimum clear width of the continuous passage shall be as shown in Fig. 7(a) and (b):

(1)Public sidewalks less than 60 in. (1525 mm) in continuous width shall provide passing space at reasonable intervals not to exceed 200 ft. (61 m). Passing space shall provide a 60 in. by 60 in. (1525 mm by 1525 mm) minimum clear space and may be provided at driveways, at building entrances, and at public sidewalk intersections.

(2) Slope:

- (1)The minimum feasible public sidewalk running slope consistent with slopes established for adjacent roadways shall be provided.
- (2)Public sidewalk cross slope shall not exceed 1:50 (2 percent). Where public sidewalk intersections in the public right-of-way serve two directions of travel, the slope in any direction shall not exceed 1:50.

(3) Surfaces:

- (1)Changes in level up to 1/4 in. (6 mm) may be vertical and without edge treatment (see Fig. 7(c)). Changes in level between 1/4 in. and 1/2 in. (6 mm and 13 mm) shall be beveled with a slope no greater than 1:2 (see Fig. 7 (d)). Changes in level greater than 1/2 in (13 mm) shall be accomplished by means of a public sidewalk curb ramp that complies with 14.2.4. a ramp that complies with 4.8 (Ramps), or an elevator that complies with 4.10 (Elevators).
- (2)Gratings in public sidewalks shall have spaces no greater than 1/2 in. (13 mm) wide in the direction (s) of traffic flow and shall not be located in the continuous passage.
- (3)Where public sidewalks cross rail systems at grade, the surface of the continuous passage shall be level and flush with the rail top at the outer edge and between the rails. The horizontal gap on the inner edge of each rail shall be the minimum necessary to allow passage of wheel flanges and shall not exceed 2-1/2 in. (64 mm) maximum.

SIDEWALK CURB RAMPS

(1) General:

- (a) A public sidewalk curb ramp and level landing shall be provided wherever a public sidewalk crosses a curb or other change in level at each street crossing and where otherwise required in this section and shall be connected to a continuous passage in each direction of travel.

(2) Types of Public Sidewalk Curb Ramps:

Public sidewalk curb ramps shall be perpendicular to the curb at street crossings and each shall have a level landing at the top (see Figs. 58 and 59 (a)). At marked crossings, the bottom of the ramp run, exclusive of flared sides, shall be wholly contained within the markings (see Figs. 60 (a) and (b)). Single (i.e., diagonal or depressed corner) public sidewalk curb ramps serving two street crossing directions and built-up (i.e., projected) public sidewalk curb ramps are not permitted in new construction.

(3) Width:

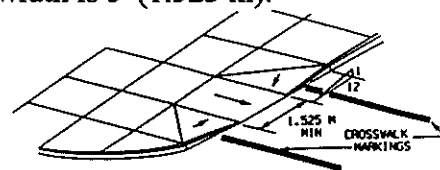
Public sidewalk curb ramps shall be 36 in. (915 mm) wide minimum, exclusive of flared sides. Note: NYSDOT recommended minimum width is 5' (1.525 m).

(4) Landings:

- (a) Where a perpendicular sidewalk curb ramp is provided, a landing the width of the public sidewalk curb ramp shall be provided at the top of the ramp run (see Fig. 58). The slope of the landing shall not exceed 1:50 in any direction. The landing shall be 48 in. (1220 mm) minimum in length and shall connect to the continuous passage in each direction of travel.

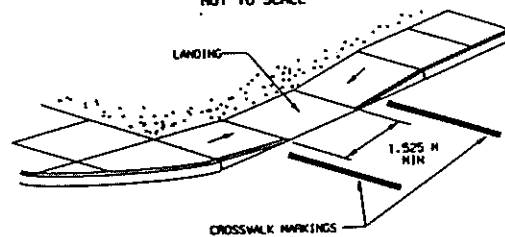
(5) Slope

The minimum feasible running slope shall be provided for any public sidewalk curb ramp and shall be measured from a level plane, as shown in Fig. 61. The maximum running slope of any public sidewalk curb ramp shall be 1:12. The maximum cross slope of any public sidewalk curb ramp shall be 1:50.

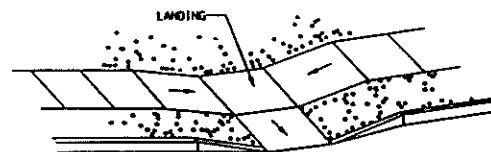


PERPENDICULAR PUBLIC SIDEWALK CURB RAMP (TYPE 1)

NOT TO SCALE

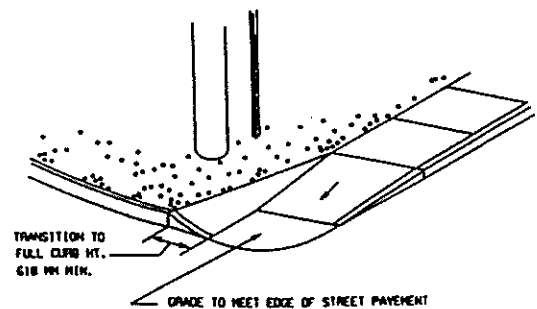


PARALLEL PUBLIC SIDEWALK CURB RAMP (TYPE 2)



COMBINED PARALLEL/PERPENDICULAR
PUBLIC SIDEWALK CURB RAMP (TYPE 3)

NOT TO SCALE



PUBLIC SIDEWALK CURB RAMP (TYPE 4)

NOT TO SCALE

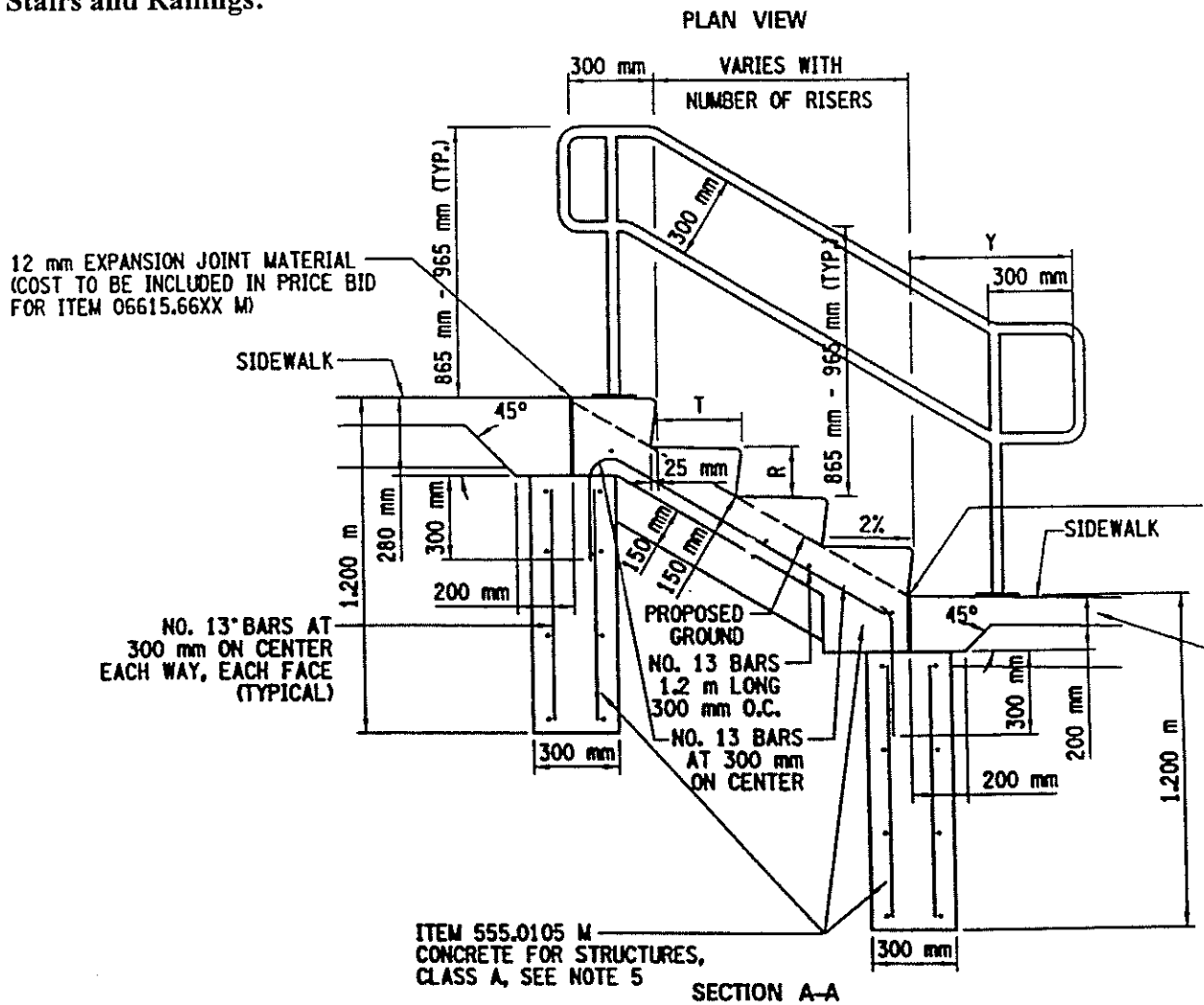
(6) Edges

Where a side of a perpendicular public sidewalk curb ramp is contiguous with a public sidewalk, it shall be flared, with a slope of 1:10 maximum. A perpendicular public sidewalk curb ramp may have a returned side or flare of any slope when not contiguous with a public sidewalk or where protected by a guiderail or other barrier.

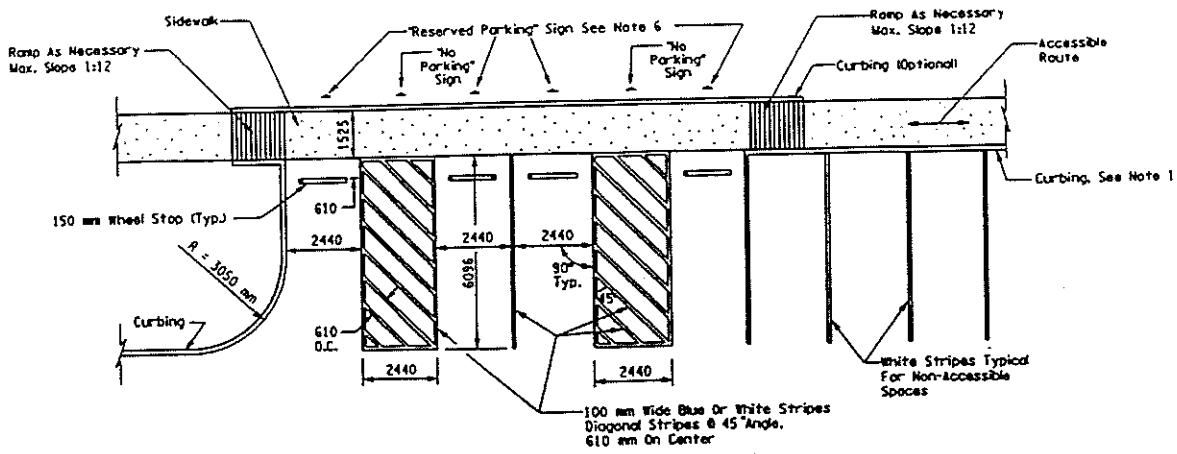
(7) Surfaces

(a) The surface of a public sidewalk curb ramp shall be stable, firm and slip-resistant. Gratings and similar access covers shall not be located on public sidewalk curb ramps or landings. The surface of a perpendicular public sidewalk curb ramp or the landing of a parallel public sidewalk curb ramp shall contrast visually with adjoining public sidewalk surfaces, either light-on-dark or dark-on-light.

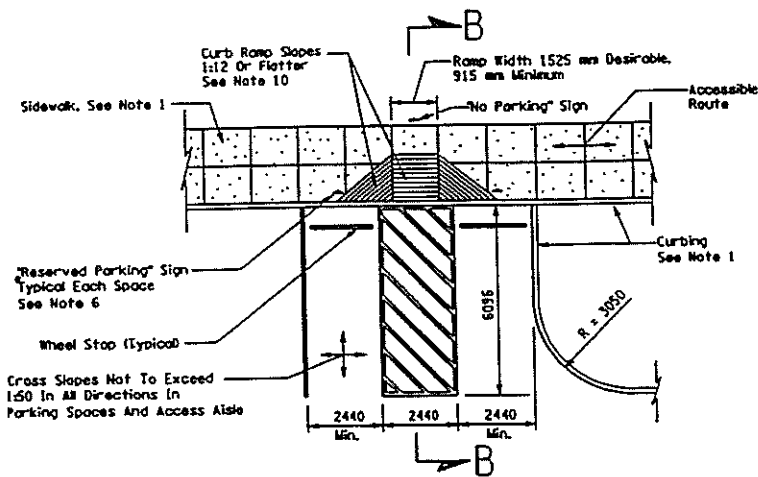
Stairs and Railings:



TYPICAL DETAILS - PARKING



STALL LAYOUT ACCESSIBLE PARKING



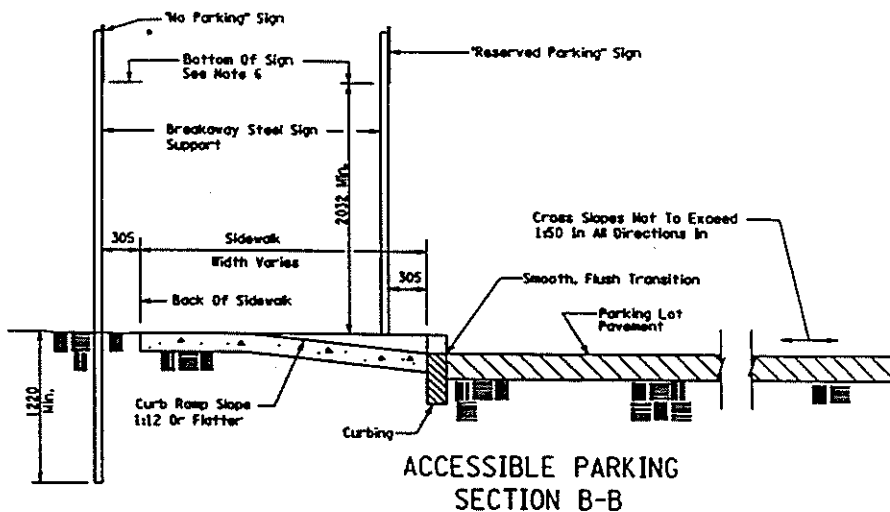
STALL LAYOUT ACCESSIBLE PARKING



TYPICAL FOR PARKING SPACE

TYPICAL FOR ACCESS AISLE

SIGNING
1305 x 4601



ACCESSIBLE PARKING SECTION B-B

Notes: (Typical Details - Parking)

1. Locations - Parking spaces for use by persons with disabilities shall be the spaces closest to the nearest accessible building or facility entrance on an accessible route.
2. Dimensions - Accessible parking spaces shall be at least 2440 mm wide and shall have an adjacent access aisle 2440 mm wide measured perpendicular to the stall stripe to accommodate vans with lifts.
3. Common access aisles for 90° parking - Two accessible parking spaces may share a common access aisle, for acute angled parking, such as 60° parking, or where one way driveway aisles would prevent vans with passenger side lifts from backing into accessible spaces. An accessible access aisle must be provided for each accessible parking space.
4. Signing - Each accessible parking space shall be marked or permanently installed above ground signs which display the international symbol of access.
 Each common access aisle shall be marked by permanently installed above ground signs indicating that parking is not permitted in the aisle.
 Signs shall not block the accessible clear width of adjacent walkways or be located where they may be hit by vehicles being parked.
 The bottom of signs located in walkway areas shall be at least 2032 mm above the walkway surface.
 The bottom of signs located in non-walkway areas shall be between 1525 mm and 2134 mm above the parking space pavement surface.
5. Surface slopes - Accessible parking spaces and access aisles shall be level with surface slopes not exceeding 1:50 in all directions.
6. Pavement Marking Colors - Required accessible parking space and access aisle striping and other optional pavement markings, such as the international access symbol, shall be painted white or blue.

Parking Facilities:

Minimum Spaces Required:

Total Parking In Lot	Required Minimum Number Of Accessible Spaces
1 to 25	1
26 to 50	2
51 to 75	3
76 to 100	4
101 to 150	5

151 to 200	6
201 to 300	7
301 to 400	8
401 to 500	9
501 to 1000	2 percent of Total
1001 and over	20 plus 1 for each 100 over 1000

Roadside Development

Highway roadsides are an integral part of every highway. The landscape development of these roadsides shall be planned with the same thoroughness whether the highway is to be on new location or an existing highway is being reconstructed. The needs and desires of the local community, including governing authorities, should always be considered.

Landscape Development may include:

1. Temporary and permanent erosion and sedimentation control.
 - ◆ Needs of pedestrians and bicyclists.
 - ◆ Vegetation management.
 - ◆ Tree removal and Clearing, Grubbing.
 - ◆ New planting for various reasons.
 - ◆ Slope stabilization, including the determination of soil types, topsoil, seeding (turf establishment), wildflower planting and sodding.
 - ◆ Miscellaneous development such as parking facilities, safety parking areas, safety rest areas, scenic overlooks, fishing access sites, park development, historic preservation and other environmental improvements.

Common Landscape Development Elements - Definitions

Clearing and Grubbing - Used to remove vegetation where special precautions are not required. Large trees may be removed under this Item where adequate ROW is available to fell the tree and no utility wires, lawn areas, residential dwellings require special precautions to be taken. Branches less than 5 meters above any part of the roadway shall also be pruned as well as all branches broken or injured during construction. Fences, structures, debris, brush, and similar items may also be removed under this Item when so designated. Clearing and Grubbing is generally used to remove all smaller sized trees, especially those under 150 mm diameter breast high (DBH).

Establishing Turf/Wildflower Establishment - Used to establish a vegetative cover in areas disturbed by construction. Normally includes sowing seeds, fertilizing and mulching. A mixture of seed types is usually specified to provide diversity against insect and disease attack. Seeds are specified as grams per square meter of **pure live seed**. Pure live seed of each seed type is determined by multiplying the percent within the seed mix by both purity and germination percentages. Fertilizers are specified as three numbers such as a 10-20-10, which represent the percent of Nitrogen, Phosphoric

Acid and Potash, respectively. Inert materials make up the remaining percentage of the seed mix (60% in this case).

Planting - Planting may be used to reduce headlight glare, provide shade, provide permanent erosion control, mitigate vegetation removal and to improve the aesthetics and beauty of our highways. Plants are normally “nursery grown” and inspected by a Landscape Architect prior to acceptance. Plants should be watered at the specified rate the day of planting. Trees should be set plumb and any support stakes should be installed parallel to the road.

Sodding - Sod is used in many urban situations where “instant” grass is desired. Keep wet prior to installation. Sod should not be stored for more than five days. Minimum 50 mm depth of topsoil and fertilizer required under all sod. Sod would be watered at the time of installation.

Topsoil - Topsoil (often referred to as **loam**) is usually a naturally occurring surface layer of soil which has the proper gradation, organic matter and pH value to provide an optimum growing medium. Topsoil must be stockpiled and tested to meet the following requirements:

1. The pH of the topsoil shall be between 5.5 and 7.6
2. The organic content shall not be less than 2% nor more than 20%.
3. Gradation:

Sieve Size	Percent Passing by Weight
50.0 mm	100
25.0 mm	85 to 100
6.3 mm	65 to 100
75 mm	20 to 80

4. The maximum size of objects other than stones shall be 50.0 mm. The contractor and the NYSDOT must be present at the time of sampling.

Tree Removal - Utilized to remove trees where special precautions are required, such as under and within utility lines, near homes, lawn areas, near other ornamental vegetation, or where a lane closure is required to accomplish the work. Stumps should be grubbed (removed) within the roadway section, cut flush in mowed areas and ground 150 mm below grade in lawn areas.

Should you desire further detail reference material, see your Regional Landscape Architecture/Environmental Services Unit. The following is a partial list of available resources:

- ◆ **Environmental Procedures Manual**, 4 volumes
- ◆ **Fundamentals of Noise Abatement**, 2 volumes
- ◆ **Design Procedure Manual**, 1 volume
- ◆ **SEQRA Regulations**, 1 volume
- ◆ **Traffic Noise Modeling**, 1 volume
- ◆ **FHWA Preparation of Environmental Documents**, 1 volume
- ◆ NY Guidelines for Urban Erosion and Sediment Control, 1 volume